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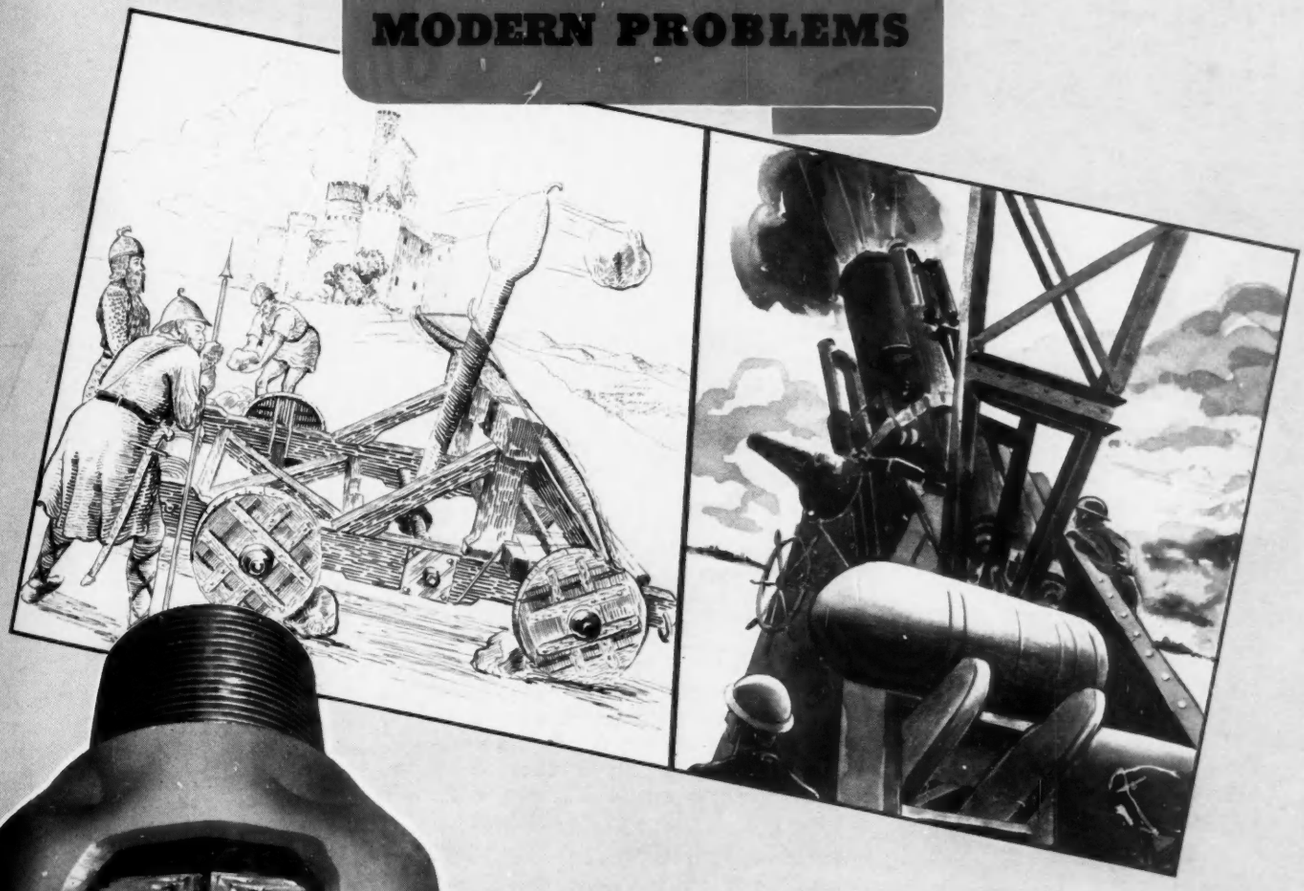
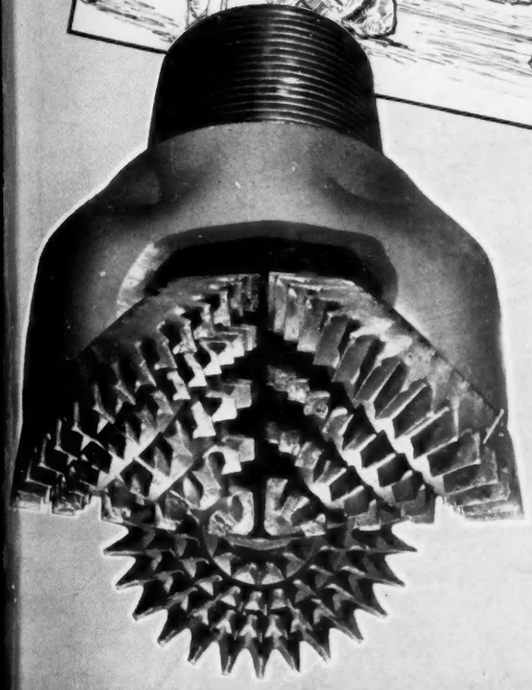
TO "WHIP"
MODERN PROBLEMS





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The Oil Man's Calendar

MAR.	
15-17	Society of Exploration Geophysicists, New Orleans.
16-18	American Association of Petroleum Geologists, New Orleans.
21-25	Western Metal Congress, Biltmore Hotel, Los Angeles.
23-25	American Society of Mechanical Engineers, Los Angeles, Calif.
24-25	Southwestern District, A.P.I., Spring Meeting, Fort Worth, Texas.
APR.	
13-15	Petroleum Industry Electrical Association, Rice Hotel, Houston.
13-15	National Petroleum Association, Cleveland, Ohio.
14-15	A.P.I., Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pennsylvania.
19	A.P.I., Division of Production, Pacific Coast District, Spring Meeting, Biltmore Hotel, Los Angeles.
19	Western Petroleum Refiners Association, Hot Springs, Arkansas.
MAY	
6-12	American Gas Association, Natural Gas Department, New Orleans, La.
11-13	Natural Gasoline Association of America, Hotel Tulsa, Tulsa.
12-14	National Oil Scouts Association of America, Tulsa, Oklahoma.
14-21	International Petroleum Exposition, Tulsa, Oklahoma.
23-25	A.P.I., Mid-Year Meeting Wichita, Kansas.
JUNE	
4	Illinois-Indiana Petroleum Association, Sixth Annual Conference, Robinson, Illinois.

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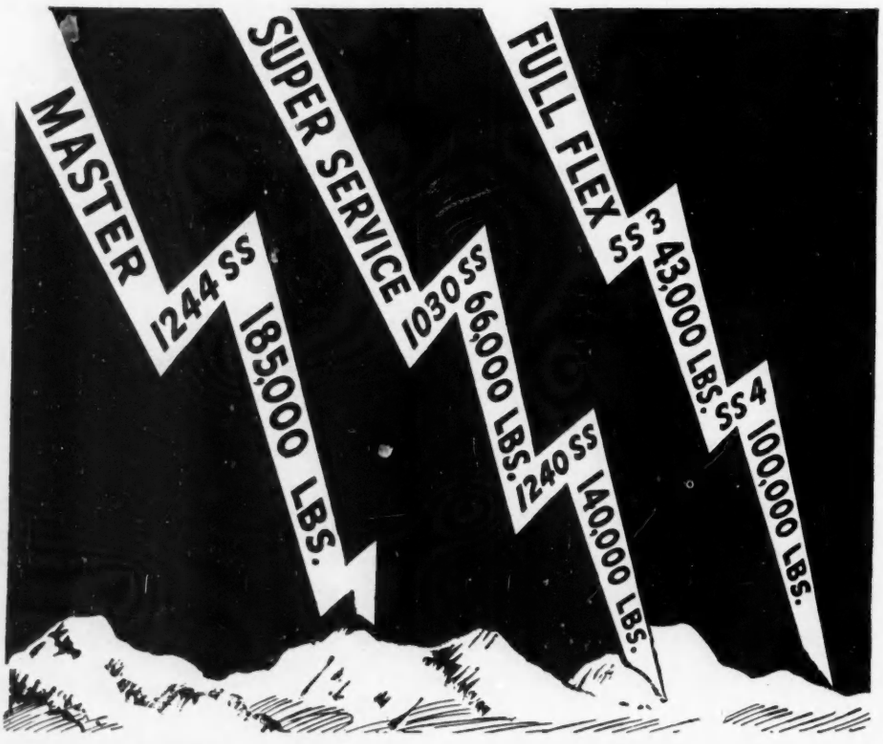

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LOOKING AHEAD

WITH THE EDITOR

Removing Hydrogen Sulfide from Gas . . .
Geologists Meet This Week . . .
Choking of Oil Wells . . .

DO you remember that article in the February 14 issue of THE OIL WEEKLY called "The Method for Differentiating Between Sweet and Sour Gas?" A. M. Crowell and Sol Smith wrote it. Well, the result was such a flock of inquiries concerning the method for extracting hydrogen sulfide from natural gas that an investigation was made. And the same two men, one a natural gas engineer and the other a chemical engineer, are coming back soon to these pages to relieve the suspense of the curious ones with "Methods for the Removal of Hydrogen Sulfide from Natural Gas in the State of Texas,"—formulae and all. It's one of those yarns that will make you look into your own H_2S problem—and do something about it.

AN oil executive craving a broad conception of conditions in the industry in the United States today, or in most any section thereof, as well as something better than a compendium sketch of late trends, theories and practices of such vital branches of exploration as geology and geophysics, could very profitably spend the week at New Orleans.

There the Society of Exploration Geophysicists will hold forth in annual conclave from March 15 to 17, inclusive. There also will be in session March 16 to 18, inclusive, the twenty-third annual meeting of the American Association of Petroleum Geologists. There also, the paleontologists will be in session. The papers presented, as well as the observations of the symposiasts, will be worthwhile.

All meetings will be covered in the March 21 issue of The OIL WEEKLY.

IN choking oil wells there is no hard and fast rule. Experience dictates that best practice is to experiment until desired results are obtained. An article on choking is to be published soon.

The changing panorama

PERHAPS the significance is small. But it is noteworthy that more and more, in comments on business conditions, the mild word "recession" is being discarded in favor of the stern word "depression."

The difference is one of degree, and apparently, increasing numbers of men are coming to the conclusion that the present difficulties represent more than a temporary recess of good business.

Signs of Improvement Few

Furthermore, much of the cheerfulness that remains is based as much on inherent optimism and wishful thinking as upon concrete facts. For definite signs of lasting improvement in the business situation are scarce.

The serious decline in employment in recent months is an inescapable fact of grave significance. For increasing unemployment is cumulative in its depressing effects, each lost job meaning reduced mass buying power and tending to cause the loss of another job.

It is noteworthy, moreover, that the unemployment situation is assuming world-wide proportions. In England and Canada, for instance, as well as in the United States, unemployment has increased more than seasonally in recent months.

Continued Dullness Indicated

Most of the barometers of business offer, meanwhile, only limited encouragement. It is true that the sharp declines of prices, sales volumes, earnings, production, construction, and so forth have been arrested in the past few months, and that the trends lately have been sidewise, as the whole situation has assumed a degree of stability at the lower levels.

But there are no signs of any important upturn. And instead of being watched seriously for such signs, the barometers are under constant observation for possible signs of further recession from present levels. Some business men today will venture guarded expressions of hope that better times lie ahead. But few will assert unconditional confidence in the future.

Since business is thus cautious and skeptical, it is to be expected that industry and commerce must go through a considerable period of hesitation and subnormal activity, at best. For business naturally does as business thinks. And more confidence than that of today is required to generate vigorous business.

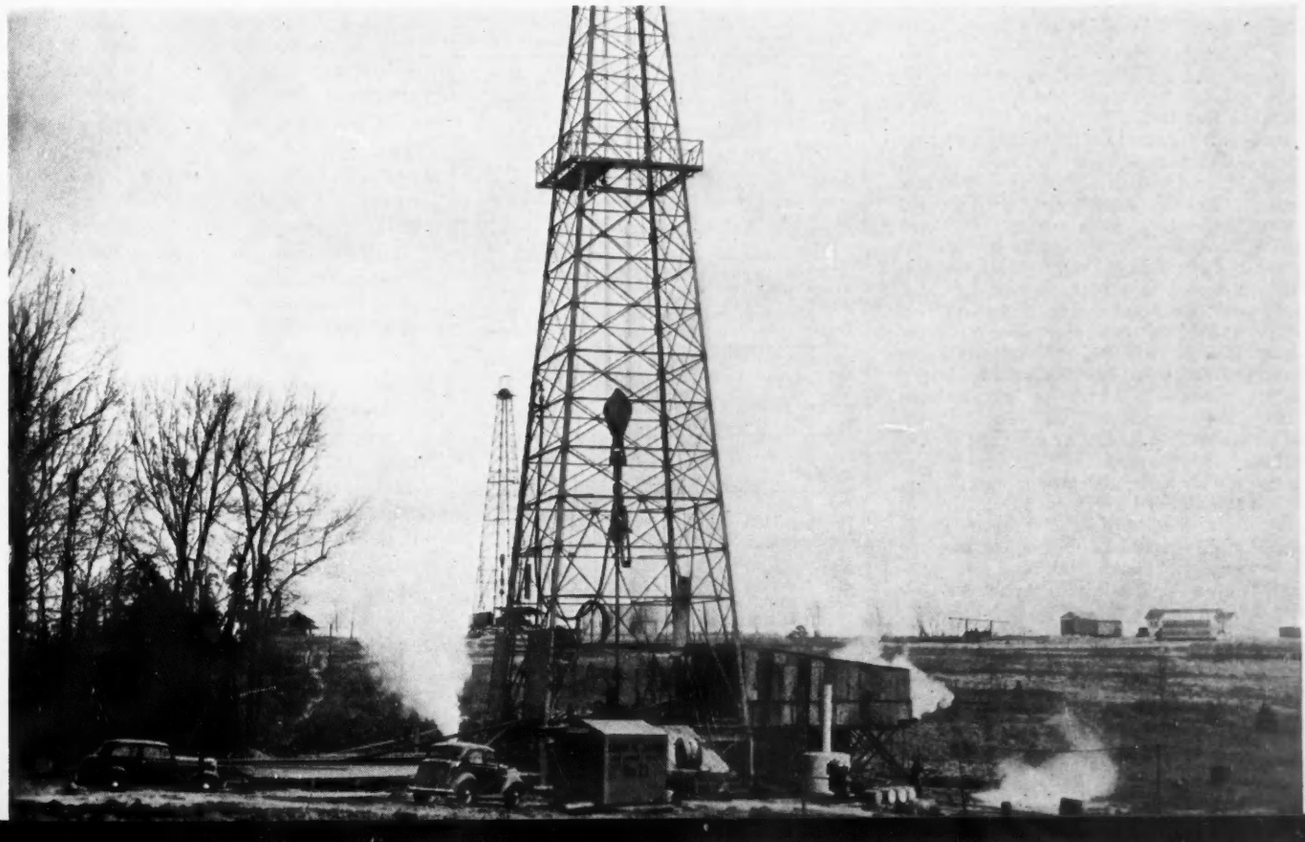
Demand Less Favorable

The oil industry so far has suffered less than many other lines from the business decline. But oil companies have begun to feel the adverse effects of less favorable trends of consumption of petroleum products.

The formerly rising trend of gasoline consumption has flattened out to a level only a little above that of last year, and some of the petroleum products lately have been in smaller demand than a year ago.

Coupled with the less favorable trend of gasoline consumption is the persisting over-supply of gasoline storage. Those circumstances have been responsible for lower gasoline prices, and they threaten to keep the gasoline market unstable indefinitely, although

Heavy-duty rigs capable of drilling to 10,000 feet are required to reach the deep producing zone at Schuler, the most important discovery in Arkansas in years and one of the ranking strikes in the Ark-La-Tex area. There are 32 wells producing and 24 drilling. Bottom-hole pressures in the lower sand range from 3200 to 3500 pounds. Production now covers 700 acres, but it is estimated final development will be from 5000 to 10,000 acres. Recovery is estimated as high as 10,000 barrels per acre. From 60 to 70 days are required to complete a well in the 7600-foot level at a cost of around $85,000.



the seasonal expansion of demand this spring may afford some relief.

Price Prospects Uncertain

Beyond the first quarter, the profit possibilities will be determined largely by the trends of prices. And those trends are distinctly uncertain. Through exceptional efforts, crude oil production and refinery output are being held currently within market requirements, and the established prices are holding, generally, following the reduction of Pennsylvania grade crude postings 15 to 17 cents a barrel early last week, because of a local excess of supply over demand.

But there are still disturbing signs in the markets for both crude and refined oils. Some instances of pipe line proration of crude purchases still exist in the Mid-Continent, and the East Texas posting has been in serious jeopardy several weeks.

Prices of fuel oil and some other products have been showing unsteadiness lately, and the gasoline market is not out of danger, despite the fact prices have been steadier in recent weeks. Retail price cutting of gasoline in various districts is a disturbing factor.

Oil Companies Still Buying Supplies

While the outlook for the oil industry is uncertain, the managements of the oil concerns generally took hopeful attitudes in planning their budgets for 1938; and purchases of material, equipment, and supplies for oil fields and refineries are continuing around normal levels.

Thus the oil field and refinery equipment and supply companies continue, like the oil companies, to show relatively good earnings.

These purchases are helping, incidentally, to sustain business for the heavy goods industries, which otherwise have been affected with particular seriousness by the business slump.

State Lease Subject to Federal Tax

Abandoning principles which have been applied for more than 100 years, the United States Supreme Court of March 7 held that operators of state leases are not instrumentalities of the state to such an extent as to exempt them from federal income taxes.

The court's decision was seen as a long step toward the breaking down of the barriers which in the past have prevented a state from taxing persons operating under various types of agreement with the federal government and the latter from taxing those doing business with the states.

At the same time, in a series of four opinions, the court definitely limited the application of the depletion deduction to those who actually take the oil or gas from the ground, and barrel deductions for depletion from sums received under any type of agreement for the sale of the physical properties or by persons having no invested-capital interest in the wells.

Drilling

A NUMBER of fields in Kansas were extended, including: Kraft, Barton County; Zenith, Stafford County; Drach Stafford County; Stoltenberg, Ellsworth County; Geneso, Rice County; and Draper, Woodson County. Meanwhile, there is possibility of a new field near Burnett in Ellis County.

A northeastern Fayette County wildcat in Illinois slopped oil over the derrick floor.

Southeastern Ohio activity was revived when a well in Washington County completed for 200 barrels.

Clay County, Tennessee, reported a wildcat which got 10 barrels per hour by deepening 35 feet to 555 feet.

In South Texas testing is underway on discovery wells of new sands in Luby, South Clara Driscoll and Placedo-Keeran. Turkey Creek's possible 2800-foot southeast extension became a reality. Showings in Yegua revived hopes for an oil field in southern Live Oak County. Mirando district got two new producing horizons, one in Mirando field and one in Killam-Oilton.

Ogden field of Andrews County, West Texas, chalked up a 3¼-mile southeast extension. A well in Ivy pool, Shackleford County, yielded 25 barrels per day to open a new shallow sand at 1620 feet.

Fairbanks field in the Texas Gulf Coast, extended two ways, looks like one of major proportions. Flank production at Orange was extended again to the northwest.

A wildcat a mile off the shore of Cameron Parish, Coastal Louisiana, has chances of becoming a commercial producer. Jennings field in Acadia Parish reported a new sand on the north flank.

Market briefs

Outlook—Some anxiety prevails because of crude market unsteadiness in various districts.

Crude Markets—Generally unchanged following Pennsylvania cut of 15 to 17 cents.

Refined Oil Markets—Prices of most products holding.

CURRENT OPERATIONS

Week Ended	Daily Crude Production	Daily Crude Runs to Stills
March 5	3,339,700	3,130,000
Previous week	3,322,250	3,170,000
Year ago	3,298,800	2,930,000

CRUDE STOCKS

Date	Crude Oil (Barrels)
February 19	305,219,000
Week ago	304,915,000
Year ago	287,574,000

REFINED OIL STOCKS

Date	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
March 5	92,151,000	122,471,000
Week ago	90,719,000	120,958,000
Year ago	80,102,000	99,534,000

DRILLING

Period	Wells Completed
Past week	431
Previous week	458
Year ago	520
Year Total:	
This year	5,000
Last year	5,015

Technology

WRINKLE bending of pipe in constructing transmission systems is a relatively new method that promises considerable economies. It consists of heating with welding torches one or more narrow bands at right angles to the pipe and extending about half way around the pipe. The latter is then bent by hand, tractor or bending rig. Complete details of the method and its advantages are explained on page 17.

The American Petroleum Institute Division of Production recently has approved Code 25, which sets up standards for measuring, sampling and testing crude oil. This is another advancement in such work, as it promotes uniform and accurate methods. Full details of how gauging operations must be performed are presented in a well illustrated article by Otto D. Stallard, superintendent of gauging for a large concern, on page 20.

Much has been written about the crude reserves of United States Soviet Russia, and have revealed a broad divergence of opinion. In this issue, page 48, appears the third installment of a series on this subject. An important feature of this particular series is that the material was gathered in the fields themselves. Read what L. David Wosk found out in his tour of U.S.S.R. fields.

Oil in the Courts

Supreme Court reverses tax rulings . . . Federal and state agencies taxable . . . Limit depletion allowance to income from outright production only

IN A series of rulings of great importance to the oil industry, the Supreme Court on March 7 specifically reversed former decisions to break down restrictions it had heretofore upheld on the respective rights of state and federal governments to tax each other's agencies and limited the oil and gas depletion allowance of the revenue act to income from the sale of oil or gas and applicable neither to income from the sale of the properties nor to oil or gas secured from a producer by contract.

Government land suit

Basis for its new attitude with respect to taxation of governmental agencies was laid down in an opinion delivered by Chief Justice Hughes, involving both issues as presented in an appeal of the Commissioner of Internal Revenue from a decision of the Tenth Circuit Court of Appeals in the case of Mountain Producers Corporation and its affiliate, Wyoming Associated Oil Corporation.

Involved in the case was a lease of school lands made by the state of Wyoming to Midwest Oil Company on a royalty basis. The company executed a declaration of trust under which Wyoming Associated was to benefit, and the latter claimed exemption from Federal income taxes on the ground that it was a state instrumentality.

In this connection, the court reversed earlier decisions in which it had been held a state could not tax a Federal instrumentality and the Federal Government could not tax a state instrumentality.

"In the light of the expanding needs of state and nation, the inquiry has been pressed whether this conclusion has adequate basis," Chief Justice commented; "whether in a case where the tax is not laid upon the leases as such, or upon the government's property or interest, but is imposed upon the gains of the lessee, like that laid upon others engaged in similar business enterprises, there is in truth such a direct and substantial interference with the performance of the government's obligation as to require immunity for the lessee's income.

"In numerous decisions we have had occasion to declare the competing principle, buttressed by the most cogent considerations, that the power to tax should not be crippled 'by extending the constitutional exemption from taxation to those subjects which fall within the general application of non-discriminatory laws, and where no direct burden is laid upon the governmental instrumentality and there is only remote, if any, influence upon the exercise of the functions of government.' * * *

"These decisions in a variety of applications enforce what we deem to be the controlling view—that immunity from non-discriminatory taxation sought by a private person for his property or gains because he is engaged in operations under a government contract or lease cannot be supported by merely theoretical conceptions of interference with the functions of government. Regard must be had to substance and direct effects. And where it merely appears that one operating under a government contract or lease is subjected to a tax with respect to his profits on the same basis as others who are engaged in similar businesses, there is no sufficient ground for holding that the effect upon the Government is other than indirect and remote. We are convinced that the rulings in Gillespie v. Oklahoma and Burnet v. Coronado Oil & Gas Company are out of harmony with correct principle and accordingly they should be, and they now are, overruled.

"In the instant case, we find no ground for concluding that the tax upon the profits of Wyoming Associated derived under its lease from the state constituted any direct and substantial interference with the execution of the trust which the state has assumed, and the decision of the Circuit Court of Appeals to the contrary must be reversed."

Justice Cardozo and Justice Reed took no part in the consideration of the case, but Justice Butler delivered a dissenting opinion in which Justice McReynolds concurred, in which he pointed out that at least since 1819 the implication has existed that no state may tax the operations of the Federal government in the exertion of powers that the people delegated to it and that the Federal government may not tax the operations of any state in the exertion of any of its essential functions of government.

"As to that principle," he said, "the urgency of governmental demand for money does not justify yielding here. No one can foresee the extent to which the decision just announced surrenders it. * * *

"The opinion brings forward no real reason for so sweeping a change of construction of the Constitution."

State lease ruling

On the basis of Mountain Producers Corporation, the court majority rendered a similar opinion with respect to income of Bankline Oil Company from tideland leases secured from the State of Oklahoma.

"As petitioner was engaged in its own business in producing the oil, it was bound to pay a Federal income tax upon its profits even though its operations were conducted on state lands," it was ruled.

New depletion decisions

Limitations upon the application of the depletion allowance were laid down in four cases, in one of which it held that Wyoming Associated Oil Corporation was not entitled to include in gross income, for the purpose of computing the allowance, any part of the development costs incurred by Midwest Refining Company under a contract where the latter was to drill and develop the Wyoming properties for the production of the oil which it was to purchase.

In the case of Bankline Oil Company, the court held that the contracts it had with oil producers for the treatment of wet gas by the extraction of gasoline did not give the company such an interest in the gas in place as to entitle it to depletion allowances.

In the third case, it was held that Thomas A. O'Donnell, owner of one-third of the capital stock of San Gabriel Petroleum Company, which he sold to Petroleum Midway Company, Ltd., under an agreement whereby he was to receive one-third of the net profits from the development of the San Gabriel Company profits, did not have a capital investment interest in the oil and gas in place and was not entitled to depletion allowance.

The fourth case involved Elbe Oil Land Development Company, which held certain properties in California which it conveyed to Honolulu Consolidated Oil Company, which was to pay $350,000 upon execution of the agreement, $400,000 in each of the years 1928, 1929 and 1930, and the further sum of $450,000 in 1931, and thereafter one-third of the net profits.

The company claimed 27½ percent depletion allowance on the annual payments of $400,000, but the court held the transaction was an absolute sale and a personal covenant of the Honolulu Company and, since the Elbe Company had disposed of the properties, retaining no investment therein, it was not entitled to a deduction for depletion.

All the opinions were delivered by Chief Justice Hughes.

"Congress has recognized that in fairness there should be compensation to the owner for the exhaustion of the mineral deposits in the course of production," it was held in the Mountain Producers Corporation opinion, but, it was added, to appraise the actual extent of depletion on the particular facts in relation to each taxpayer "would give rise to problems of considerable perplexity and would create administrative difficulties which it was intended to overcome by laying down a simple rule which could be easily applied. * * * In answer to the contention that the provision may produce 'unjust and unequal results,' we have remarked that this is likely to be so 'wherever a rule of thumb is applied without a detailed examination of the facts affecting each taxpayer.'

"The rule being of this sort for obvious purposes of administrative convenience, we must apply it in the simple manner it contemplates. The 27½ percent allowed is a fixed factor,

not to be increased or lessened by asserted equities. The term 'gross income from the property' means gross income from the oil and gas and the term should be taken in its natural sense. * * * We do not think that we are at liberty to construct a theoretical gross income by recourse to the expenses of production operations. The refining Company for its own purposes undertook the expense of those operations, and Wyoming Associated was content to receive as it own return the cash payments for the oil produced, leaving to the refining company the risks of production.

"We are of the opinion that the cash payments made by the refining company constituted the gross income of Wyoming Associated and was the basis for the computation of the depletion allowance."

In the Elbe and O'Donnell cases the court stressed the fact that gross income as used in the depletion provisions means "gross income received from the operation of the oil and gas wells by one who has a capital investment therein—not income from the sale of the oil and gas properties themselves" or the sale of stock therein. Once the properties are disposed of, and no investment retained therein, the seller is not entitled to take the deduction.

The Bankline decision held that the mere fact that the company tied its lines into the casinghead of a producer does not give it such an interest in production as to involve depletion allowance. "Undoubtedly, respondent through its contracts obtained an economic advantage from the production of the gas, but that is not sufficient," the Chief Justice pointed out. "The controlling fact is that respondent had no interest in the gas in place. Respondent had no capital investment in the mineral deposit which suffered depletion and is not entitled to the statutory allowance."

Oil at Capitols

House rejects fuel oil tax bill and measure to lift gasoline tax if alcohol blended . . . Quiz in Pennsylvania quits till legality determined.

BY a vote of 145 to 25 the House of Representatives on March 10 rejected the bill proposed by Representative Flannery (Pa.) providing for a one-cent a gallon tax on fuel oils.

The House also defeated, without a count of votes, a proposal by Congressman Harrington (Iowa), to lift the federal gasoline tax from gasoline containing 10 percent or more of alcohol, offered as a farm relief measure.

Another reduction in Pennsylvania crude oil prices, the fourth since last September, was viewed with some alarm as encouraging the possibility of state control. Meanwhile, the Pennsylvania oil investigating committee plans no additional activity until final determination of its constitutional powers in the courts.

Fuel bill important

Congressmen from the oil-producing states and from the major fuel oil consuming areas "ganged up" to defeat the Flannery amendment, which the Pennsylvania member said would raise from $168,000,000 to $175,000,000 a year.

Flannery denied that he was actuated by a desire to aid the coal industry of Pennsylvania, asserting that the major benefit would accrue to the bituminous producers, and said he proposed merely to tax a "luxury."

Representative Boland (Pa.), original sponsor of the tax, charged the oil companies with "sinister" and "insidious" propoganda to spread the belief that the coal interests sponsored the levy.

The keynote of the opposition was voiced by Representative Dingell (Mich.) who asserted the proposal was neither a tax matter nor a revenue matter but "purely a question of forcing by the tax method the users of crude oil to use bituminous coal for commercial, industrial and domestic purposes."

The proposal was bitterly denunciated by a number of members from the eastern consuming areas, among other things being called "crackpot" legislation.

It was hardly necessary for the oil-state congressmen to take the floor, but several of them spoke in explanation of the situation, Representative Disney (Okla.) asserting that it was not a conservation move but merely a "domestic tariff" and pointing out that when Boland appeared before the House Ways and Means Committee he admitted he wanted the tax because oil competed with coal.

Disney denied that there is any greater need for conservation today than a year ago, but pointed out that the cost of living would be increased for a million families who heat their homes with oil, and costs of operation would be increased for all the industries which use oil for power or heat.

An effort to build sympathy for the tax by contentions that more labor is required to produce coal than oil and that its imposition would result in increased coal production and, accordingly, more employment, was undertaken by Congressman Allen (Pa.) but was dropped when Representative Poage (Texas) suggested that still more labor could be employed by stopping the production of both oil and coal and make everybody use wood.

The coal interests were given assurance that their day would come, however, Representative Hope (Kansas) pointing out that when our oil reserves are exhausted, shale production will be developed and when that is gone coal will be used for the production of gasoline and oil. And when coal disappears, he predicted, we still will have no fuel problem, for the farmers will raise products from which alcohol can be extracted.

Pennsylvania Investigators await court decision

A pledge that no further expenditures would be made by Pennsylvania's oil industry investigating commission and that no hearings would be held pending a final determination of the constitutional powers of the commission was made March 7 by William Litke, of Bellefonte, counsel for the commission. The "gentlemen's agreement" supplanted an injunction granted six weeks ago by the Dauphin County Court at Harrisburg to Petrol Corporation of Philadelphia, and averted shutting off the commission's $50,000 fund.

A new taxpayer's suit, charging the commission was created illegally by a joint resolution of the 1937 legislature and empowered to employ "dragnet tactics" to pry into confidential records of any oil company it might choose to investigate, was filed by William A. Schnader, former state attorney general. Schnader argued that the commission was given wide powers and, to be legal, should have been created by a bill and not by a joint resolution. "It gives supreme inquisitory powers to the commission chairman," said Schnader, "to subpoena any person under his own hand to appear before any hearing of the commission, to produce confidential records, conduct hearings, and arrive at conclusions as to whether the public interest is so affected by the oil industry as to require state regulation. It has already been decided by the U. S. supreme court that the oil industry is not such as to be affected by the public interest."

A contention that the oil industry was found to affect the public interest in the Oklahoma oil proration law was voiced by John H. Fertig, Harrisburg attorney, added last week to the commission's counsel. "Any findings made by this commission are purely advisory, to be submitted to the governor. There is no provision in the constitution telling how a valid act of the legislature shall be entitled, whether it be called a bill, a joint resolution or an act."

Fertig asked a week's continuance in argument of the case, telling the court: "The effects of the 1937 legislature has resulted in an epidemic of injunctions, particularly in this court."

Judge John E. Fox retorted: "And an epidemic in the legislative body—an epidemic of legislation without real study."

Pennsylvania price cut encourages state control

Observers predicted that the March 7 reduction of Pennsylvania crude oil prices would encourage advocates among state administration leaders to bring oil production of that state under government control.

Walter A. Jones, attending the January meeting of the Interstate Oil Compact Commission at Oklahoma City, as a representative of Governor George H. Earle, told the commission that the governor would take steps to institute government control if production was not curbed and the industry stabilized.

The only subsequent action on the

[*Continued on page 69*]

Allowable Picture

Decide against additional Oklahoma March output cut . . . California still trying to work out a reduction . . . Protest Montana anti-proration.

ONE favorable and one unfavorable development was the sum of proration activities last week. The favorable omen was continuation of meetings in California in an effort to bring about a reduction in production, although little of consequence has resulted as yet. The unfavorable occurrence was in Oklahoma, where it was decided to permit the March allowable to remain at 475,000 barrels. This is 25,000 barrels below the state's February allowance, but a special meeting was called to consider cutting another 25,000 barrels off the market.

Oklahoma allowable remains 475,000 barrels

The Oklahoma daily allowable will remain at 475,000 barrels, following a hearing March 7, when the Oklahoma Corporation Commission heard testimony on the proposition to write another reduction to 450,000 barrels. Some purchasers favored the further reduction, which was opposed by the larger integrated concerns of the state as well as independent producers.

Indications are, however, that purchasers will cut down in some of the older fields of the southern part of the state. Buyers have objected to this oil because of its sulphur content. When total pipe line shipments out of Oklahoma were reduced purchasers complained that the combination with oil from the southern fields raised the sulphur content of crude deliveries above a desirable point.

The March allowable of 475,000 barrels daily for Oklahoma is 72,700 barrels below the estimate of the United States Bureau of Mines and those who objected to further reduction of allowable contended that the order would result in loss of crude oil market for the state.

Carter Limits Purchases

However, an announcement by Carter Oil Company, Tulsa, stated that concern was limiting its purchases of crude oil in four southern Oklahoma pools to 25 barrels per well, effective March 8. Pools included in the cut are Tussey, Wildcat Jim, Knox and Spring.

The statement said, in part, "This action on our part is imperative because of conditions that are beyond our control and which have been fully explained to the producers in southern Oklahoma in numerous conferences. It is with extreme regret that we find it necessary to reduce our purchases, but no other course is open to us and the method of reduction set forth here is the fairest and least burdensome that we have been able to devise."

As an example: A lease having four wells producing a total of 125 barrels per day, will be able to dispose of 100 barrels daily through the company. No reduction will be made for a lease with wells averaging only 25 barrels per day, and a lease with one well making 25 barrels, will not suffer reduction. If the production of the well is more than 25 barrels, the company will not take any of the excess.

H. F. Miller, marketing superintendent for Carter, had previously requested that the corporation commission issue an order setting the allowable at 25 barrels per well in the four above-mentioned pools. The motion was opposed by the southern Oklahoma operators. It was taken under advisement by the commission.

Some California fields may reduce

Following a suggestion by Lawrence Vander Leck, chairman of the Central Committee of California Oil Producers, a series of meetings are under way for the various fields that have been exceeding their respective quotas as to daily production.

Twenty largest independent California producers Friday agreed to further oil curtailment under present voluntary plan which has been successful the past 10 years.

Lawrence Van der Leck chairman, Central Commiitee California Oil Producers stated producers voluntary cut back 56,000 barrels the past 10 days. Large independents favor voluntary method, said Van der Leck. Townlot producers at Wilmington also want voluntary plan to remain effective.

Last week, meetings were held by chairmen and operators representing the Elwood, El Segunda and Lakeview fields.

Operators in the Lakeview field, are reported willing to abide to a 10-day production holiday, to be enforced at the end of each month, which would go a long way in curtailing heavy production as an aid to the conservation program. Lakeview has been producing approximately 17,700 barrels daily as against a quota of 11,200 barrels. This field during 1937, showed its willingness to curtail by adopting a 10-day production holiday. Other meetings will be scheduled during the current month, these to be held in the assembly rooms of the oil umpire.

California control bill is unlikely

Although it is too late to get action on a state oil control bill at the special session of the Legislature, a movement to present such a bill is still under way.

This week, Huntington Beach oil operators at a mass meeting called by Neal Anderson, former oil umpire, went on record as supporting the measure. Copies of the report were sent to A. C. Mattei, of San Francisco, who sponsored the movement.

Reports current here are to the effect that work will continue toward the end of getting the measure before the Legislature when it meets next winter.

The scrap to get through a state-oil control bill has the oil industry guessing. From some quarters it is stated that John B. Elliott supported such an idea several months ago. It was Elliott who filibustered last week to such effect against the movement, with the result that when it came up for a vote, only a few voted in favor of it. Reason for the haste to get through the state bill is to discourage the Federal Government from getting through a similar bill, although there is no guarantee that federal action would not be forthcoming even though the state did act.

Filibustering tactics of John B. Elliott, Democratic leader and independent oil operator, aided by Allen Jergins, William Keck, Jr., and other independent operators, broke up a well organized plan for pushing through acceptance of a so-called oil control bill that was slated to be presented to a special session of the California legislature this week. The meeting that lasted four hours in the Biltmore Bowl, broke up in virtual disorder, almost before there was time to call for a standing vote by A. C. Mattei, chairman.

Actual count showed that 16 voted in favor of the measure, with approximately 30 voting against it. Majority in attendance failed to register a vote, for or against, choosing to sit and listen to their associates scrap it out on the floor.

Threats of price reduction and possible intervention on the part of the federal government, was the basis for presenting the bill to the California oil producers. It was the hope of those sponsoring the bill that if the state stepped in with a control measure, regulating production and drilling problems, that the federal government would do nothing about the oil business. However, there was no guarantee by leaders of the movement that the government would not do something about it just the same.

Ralph B. Lloyd, William Morgan of Bush Oil Company; William Geis, president of California Oil and Gas Association; Neil Anderson, former oil umpire and independent producer; Lloyd Williamson, member of Central Committee of California Oil Producers; A. H. Bell, official of Continental Oil Company; Emil Kluth, petroleum engineer, George F. Getty, Inc.; Dick Mitchell, independent producer supported the measure and advocated its acceptance by California producers.

Bill of exceptions filed with Montana's governor

Decision of the Montana Oil Conservation Board rejecting proration following recent hearings in Great Falls is contested in a bill of exceptions filed with Montana's Governor Roy Ayers by George Hurd, attorney for the exponents of proration. The bill charges that the personnel of the board should be changed and that the anti-proration decision should be invalidated because some of the board members were prejudiced against proration.

It charged three members of the

[*Continued on page 62*]

Labor Situation

Union complains against Humble . . . Court stay expiration awaited in Mexico . . . Pennsylvania hour law ruling soon . . . Concern must rehire

OIL industry labor organizations in the United States are observing closely the National Labor Relations Board hearing held at Baytown, Texas, on a complaint filed by the Baytown Local No. 333, Oil Workers Union, against Humble Oil & Refining Company. As the most important labor event during the past week, the outcome of this hearing will no doubt greatly influence further labor disputes between companies and oil workers unions and set a precedent for future independent labor organizations. Mexico's labor situation was less tense in the last few days, as foreign oil companies looked with anxiety towards the result of the intervention by the first district court.

Humble Labor Case

Last week the local oil workers union of Baytown, Texas, affiliated with the C.I.O. filed a complaint against Humble Oil & Refining Company, claiming that the company failed to observe the Wagner Labor Act regulations in establishing its Employes Federation, an independent labor organization comprised of employes of the company's Baytown refinery. The Oil Workers Union will seek to outlaw the federation. The union charges that Humble Oil & Refining Company discouraged union activities, that the company fostered the Employes' Federation and that three employes were discharged because of union activities.

In the course of this hearing three company motions for severance of charges of unfair labor practices between the company's Baytown and Ingleside refineries were denied. The motions were overruled by J. C. Batton, examiner for the board. Chief of the five motions taken under advisement was filed by the company's attorney. This motion stated that the company's refining departments do not deal in interstate commerce, and are separate from pipe line subsidiary units which operate in New Mexico and Louisiana, and since the refined products change title when they leave the company's docks at Baytown and Ingleside, the commerce is confined to the State of Texas, and the National Labor Relations Board has no jurisdiction.

Warren Woods, NLRB attorney, filed an answer which maintained that while title does change at the docks, 70 percent of the company's stock is controlled by Standard Oil Company of New Jersey, and 90 percent of its Baytown refinery products are sold out of the state. A second motion sought to strike and dismiss portions of the complaint. Third and fourth motions objected to charges filed in connection with the Baytown and Ingleside refineries on the grounds that definite identification as to person, time and place of violation of national labor relations act provisions were not cited. The fifth motion charged that the complaints are vague, indefinite and general in their wording.

In one of the hearings, Woods introduced a Humble courtesy card, the purpose of which was to show that the company was engaged in interstate commerce. Hines Baker, attorney for the company, offered the information that the courtesy card was simply a contract arrangement where the credit of one company is extended by courtesy to another company and that no profit is involved. Baker claimed that it is an arrangement of the sales department, and has nothing to do with the manufacturing or refining part of the company. Woods later introduced a photostatic copy of a Standard Oil Company of New Jersey report to the securities commission listing Humble Oil & Refining Company as a subsidiary, with the former company owning 70 percent of the stock. He also claimed that the company is engaged in interstate commerce in every state of the union as well as in foreign countries. Examiner Batton ruled the report as immaterial and not to be considered part of the official record. He ordered, however, that it be submitted in a separate binding to the NLRB when the intermediate report is filed.

Further cross examination of various employes and company officials marked the continuation of this important labor case and it is expected that this hearing will continue during the next few weeks.

Mexican Companies Silent

The deadline for compliance of 17 American and British oil companies with an award of higher wages for their 18,000 employes passed without action by either the government or companies involved. However a climax of the conflict is seen for Monday, March 14, when definite action that will tell the tale one way or the other is expected to occur. Virtually nothing can happen to influence the situation until then, owing to the week-end holiday following expiration of the temporary stay which the companies obtained on a technicality. What is expected to happen Monday is pure speculation with nobody knowing for certain just what will occur.

Emphatic denial is made of rumors circulated by certain elements that Mexican Eagle Oil Company has split with the American companies and is seeking to make a separate peace with its workers. Mexican Eagle Oil Company is as eager as are the other involved companies to maintain a united front, it is asserted.

Accounts in Mexico City's banks of various companies, to the value of approximately $198,000, were attached by the Conciliation Board to assure payment of 75 percent of wages during last summer's strike. Of the attached funds about $140,000 are of the Mexican Eagle Oil Company and $28,000 of Huasteca Petroleum Company.

Reinstatement of three employes by Southport Petroleum Company, Houston, was recommended last week by Joseph F. Kiernan, trial examiner of the National Labor Relations Board.

The company was declared guilty of unfair labor practices and anti-union discrimination, the intermediate report stated. The report is the culmination of a hearing held before the labor board representative last December. Kiernan recommended that the company cease unfair labor practices. He found that the company was not guilty of refusing to bargain collectively because the union had not presented sufficient proof that it represented a majority of the workers. The examiner's report stated that the company was guilty of unfair labor practices by discharging and refusing to employ the three men, and by doing so it attempted to discourage membership in the Oil Workers International Union.

Pennsylvania Decision Soon

The decks were cleared last week for a state supreme court hearing on the constitutionality of Pennsylvania's 44-hour week law, a measure enacted by the 1937 legislature which was to have become effective December 1. Enforcement of the act has been stayed by the Dauphin County Court at Harrisburg on a suit brought by a Perry County taxpayer who asked that the law be declared inoperative pending decision of legal questions.

Arguments before the lower court were completed last week on an injunction suit originally brought by a Kane manufacturing firm and in which more than 700 other state firms and organizations intervened. It was indicated that a decision would be issued in time to bring on appeal before the state supreme court which convenes in Pittsburgh March 21. Both sides expressed their readiness to take an appeal should the decision be against them.

Thomas Raeburn White, Philadelphia attorney representing companies challenging the act, told the court that the nation was closely watching court action on the law, which, if upheld, would be used as a yard-stick for similar laws being considered in other states. The law, it was argued, would not increase employment but would force lay-offs because of increased expenses.

Threatens Stripper Wells

Pennsylvania producers are vitally concerned in the litigation on the act. Threatened shut-down of many of the state's 95,000 stripper wells was averted shortly before the act was tied up by injunction when the state industrial board granted a modification to apply to "outside workers" and which declares that "employers may permit employes in or immediately connected with outside work to average 44 hours per week over a period of one calendar month and to work six days per week where weather and climatic conditions have caused interruption of regular employment." Another modification, which gave relief to small operators, would have permitted employers of three or less persons to maintain 54-hour week schedules, divided into six 9-hour days. The basic law fixes maximum hours of work as 8 daily, and 5½ days weekly.

Even under these modifications, however, many Pennsylvania producers would find it difficult to operate. In many cases, pumpers living on the leases, while not engaged in physical labor many hours during a week, are on call or on duty long hours so that equipment is kept in running order.

Drilling Continues Heavy in 1938

Field work holds up steadily, despite general business decline, as activity is encouraged by continuation of favorable prices for crude oil.

By J. L. LOGAN, Associate Editor

THE general business decline so far has not had any appreciable effect on the drilling of oil and gas wells.

For five years, or since the summer of 1933, the basic, general trend of drilling has been one of steady expansion. That trend did not change in 1937 despite the business recession, and it still has not changed.

In the first two months of 1938, well completions were 17.4 percent more numerous than in the similar period of 1937. The January and February completions totaled 4123 wells in 1938, compared with 3512 in 1937.

It is interesting to note, moreover, that February, 1938, showed a substantial gain over February, 1937, whereas January, 1938, was slightly under January, 1937. In February, last year, drilling declined materially from January; but in February, this year, there was but a slight drop from January.

Seasonal Trends Charted

The accompanying chart shows probably better than words ever could how the trend of drilling has been. It shows the average number of wells completed daily in each month since the beginning of 1933. And it reflects the normal seasonal fluctuations in drilling, which have been remarkably alike every year, although at constantly rising levels.

Thus in each year after recovery commenced in 1933, January and February have been months of comparatively light drilling, due in large part, probably, to cold and rainy weather.

But in March, nearly always, field work increases, and it contin-

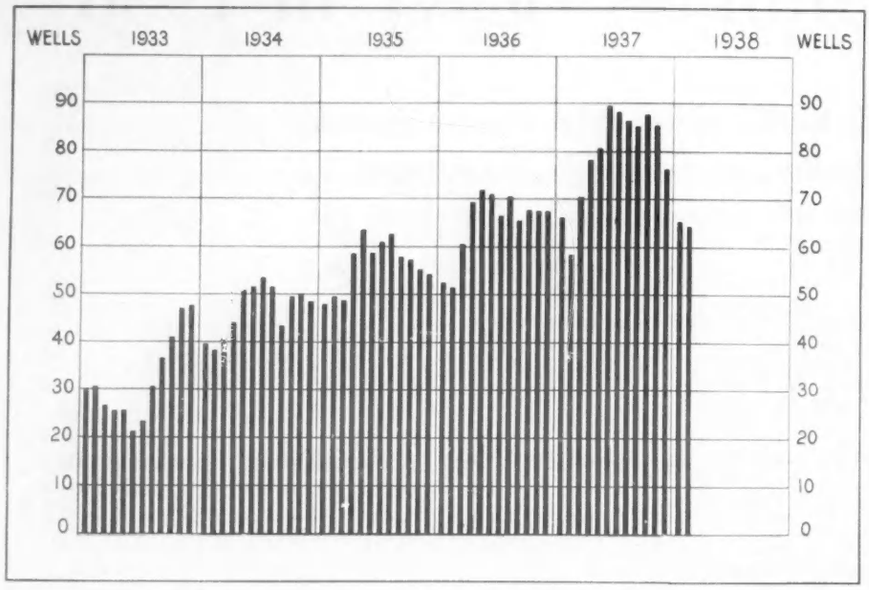
Drilling and production in February, 1938, and Cumulative for Years 1938 and 1937

STATE OR DISTRICT	*FEBRUARY, 1938, COMPLETIONS AND CRUDE OIL PRODUCTION						COMPLETIONS AND PRODUCTION IN 2 MONTHS, 1938 AND 1937								
							WELLS COMPLETED			DETAILS OF 1938 DRILLING				BARRELS PRODUCTION		
	Total Wells	Oil	Gas	Dry	Initial Production	Production for Feb.	1938: 2 Mo.	1937: 2 Mo.	Percent Change	Oil	Gas	Dry	Initial Production	1938: 2 Months	1937: 2 Months	Percent Change
Arkansas	15	11	....	4	6,925	1,300,750	36	4	+800	29	....	7	23,960	2,601,900	1,559,800	+67
California	89	74	1	14	71,033	20,644,800	208	194	+ 7	158	2	48	156,479	42,858,800	34,728,800	+23
Colorado	....	....	....	....	....	115,900	2	2	....	....	....	2	....	252,150	219,700	+14
Eastern States	257	83	119	55	9,135	3,894,000	630	428	+ 47	202	250	178	23,422	8,059,250	6,803,050	+18
Illinois	41	30	....	11	8,095	....	124	....	....	79	....	45	21,154	....	....	....
Indiana	7	1	....	6	37	....	13	26	— 50	2	3	8	42	....	....	....
Kentucky	50	25	14	11	671	....	117	40	+192	50	31	36	1,229	....	....	....
New York	8	....	7	1	....	....	13	....	....	....	12	1	....	....	....	....
Ohio	70	15	37	18	270	....	166	242	— 46	42	69	55	775	....	....	....
Pennsylvania	16	3	12	1	6	....	39	7	+457	6	27	6	96	....	....	....
West Virginia	65	9	49	7	56	....	158	113	+ 40	23	108	27	126	....	....	....
Kansas	135	95	4	36	112,127	4,938,300	339	301	+ 13	223	24	92	278,700	10,504,800	10,224,800	+ 3
Louisiana	77	54	1	22	28,874	7,174,600	191	78	+145	124	6	61	69,059	14,953,200	14,400,950	+ 4
North Louisiana	37	30	....	7	17,228	2,210,000	85	26	+227	70	5	10	44,323	4,664,600	4,464,750	+ 4
South Louisiana	40	24	1	15	11,646	4,964,600	106	52	+104	54	1	51	24,736	10,288,600	9,936,200	+ 3
Michigan	65	40	3	22	8,738	1,413,500	137	114	+ 20	92	4	41	20,520	2,954,000	1,762,600	+68
Montana	1	1	....	....	200	379,550	6	16	— 62	4	....	2	330	809,350	942,150	—14
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
New Mexico	33	28	....	5	20,260	2,954,100	81	91	— 11	72	1	8	49,763	6,274,500	5,576,400	+12
Oklahoma	169	115	9	45	20,783	14,455,050	373	407	— 8	240	27	106	55,924	31,314,950	35,160,800	—11
Southeastern States	3	....	....	3	....	....	5	5	....	....	....	5	....	....	....	....
Alabama	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Florida	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mississippi	3	....	....	3	....	....	5	5	....	....	....	5	....	....	....	....
Texas	963	741	29	193	1,261,347	34,809,000	2,105	1,860	+ 13	1,628	73	404	2,683,263	76,486,700	75,879,450	+ 0.8
East Texas Field	187	180	....	7	932,017	11,902,900	419	272	+ 54	406	....	13	2,028,195	26,545,950	26,531,500	+ 0.5
Rest of East Texas	38	24	2	12	13,080	2,521,700	92	133	— 31	70	3	19	33,554	5,177,400	6,166,150	—16
North Texas	143	104	3	36	46,251	1,791,650	308	283	+ 9	209	3	96	99,435	3,959,300	3,899,750	+ 2
South Texas	202	131	11	60	49,245	5,922,750	424	522	— 19	265	27	132	97,593	13,054,800	11,805,600	+11
Corpus Christi Area	82	57	5	20	33,950	....	175	212	— 17	113	12	50	67,331	....	....	....
Laredo Area	94	60	5	29	13,602	....	180	252	— 29	114	13	53	25,143	....	....	....
San Antonio Area	26	14	1	11	1,693	....	69	58	+ 19	38	2	29	5,119	....	....	....
Texas Gulf Coast	110	86	3	21	34,607	5,149,500	248	176	+ 41	195	8	45	79,701	11,145,150	10,880,350	+ 2
Texas Panhandle	60	46	6	8	19,507	1,778,400	144	83	+ 73	108	26	10	47,544	3,922,550	4,181,050	+ 6
West Texas	204	166	2	36	131,429	4,999,100	434	326	+ 34	365	4	65	295,680	10,955,700	10,495,150	+ 4
West Central Texas	19	4	2	13	1,261	743,000	36	65	— 45	10	2	24	1,561	1,725,850	1,919,900	—10
Utah	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wyoming	2	1	1	....	80	1,297,950	10	12	— 17	5	3	2	2,040	2,822,350	2,903,000	— 3
Total United States	1,809	1,243	167	399	1,539,502	93,377,500	4,123	3,512	+17.4	2,777	390	956	3,363,460	199,891,950	190,151,500	+ 5.1

* February completions cover not the calendar month, but the four weeks, or 28 days, ended February 26.

Average Number of Wells Completed Daily in U. S.

(By Months, January, 1933—February, 1938)



ues to expand in April and May. The drilling practically always hits the peak of the year in May, although it was greatest in June last year. In the summer and fall the drilling normally continues heavy, although usually tapering off slightly in the closing months of the year.

Forecast Being Fulfilled

In the latter part of 1937 and the early weeks of 1938 much speculation arose as to what the trend of drilling would be this year, and there was considerable doubt if 1938 would bring as much activity as did 1937, in consequence of the general business decline and its unfavorable effects on the oil industry.

However, this publication undertook a forecast of 1938 drilling, and by considering prospects, field by field, county by county, and in many cases, company by company, found indications that 1938 drilling probably would be around 7 percent greater than that of 1937.

In view of the general economic situation, that forecast may have appeared over-optimistic to many. But so far, it is being more than fulfilled. And if the current trends should continue, the 1938 actual drilling would substantially exceed the forecast.

Prices Promote Drilling

The continuation this year of the former general trend of drilling, in the face of the general business contraction, has been possible because of the maintenance of stable crude oil markets and prices.

Through benefit of exceptionally effective balancing of crude oil production with market requirements, the crude markets have been kept orderly, and very little surplus crude has accumulated in storage to disturb the established prices.

Consequently, crude oil prices so far this year have been holding generally at the same satisfactory levels that prevailed in 1937, although postings have been reduced locally in some districts, as in Pennsylvania and Michigan.

The maintenance of crude prices has had the same effect on drilling in 1938 that it always has had, throughout the years: a stabilizing effect.

Drilling Outlook

Throughout the history of the industry, drilling has closely and directly followed the trends of crude prices, up, down, or sidewise. Years of low prices have been years of comparatively little drilling. Years of high crude prices have been years of heavy drilling.

In the light of those traditional trends and reactions, it may be assumed that the trend of drilling for the rest of 1938 will depend primarily on crude oil prices.

Any material reduction of crude prices throughout the industry probably would bring about imme-

[*Continued on page 61*]

Number of Active Rigs in U. S. Remains Large

STATE OR DISTRICT	TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shut Down)				DETAILS OF MARCH 1, 1938, ACTIVITY					
					Rigs in Operation			Prelim. Activity		
	Jan. 1, 1938	Feb. 1, 1938	Mar. 1, 1938	Change of March 1 from Feb. 1 (Percent)	Drilling	Rigs Up	Shut-down	Derricks	Location	Total Operations
Arkansas	43	40	51	+27	36	4	11	2	2	55
California	360	375	390	+ 4	248	89	53	...	122	512
Colorado	28	25	22	—12	5	1	16	2	1	25
Eastern States	538	577	563	— 2	330	83	150	39	42	644
Illinois	144	126	128	+ 2	42	19	67	22	30	180
New Fields	121	61	60	— 2	25	11	24	16	22	98
Rest of Illinois	23	65	68	+ 5	17	8	43	6	8	82
Indiana	36	36	40	+11	18	2	20	1	4	45
Kentucky	24	67	56	—16	31	3	22	5	3	64
New York	23	33	35	+ 6	19	6	10	4	3	42
Ohio	122	180	172	— 4	99	40	33	10	8	190
Pennsylvania	37	124	121	— 2	77	19	25	2	9	132
West Virginia	152	137	139	+ 1	86	13	40	17	15	171
Kansas	442	266	280	+ 5	242	18	20	34	22	336
Louisiana	239	201	215	+ 7	174	25	16	12	52	279
North Louisiana	91	87	104	+19	79	16	9	4	4	112
South Louisiana	148	114	111	— 3	95	9	7	8	48	167
Michigan	209	188	165	—12	106	27	32	23	19	207
Montana	41	35	37	+ 6	15	1	21	2	2	41
Nebraska	2	4	3	—25	2	...	1	...	1	4
New Mexico	108	119	95	—20	63	10	22	6	12	113
Oklahoma	454	324	329	+ 2	274	15	40	37	64	430
Southeastern States	25	21	21	....	9	1	11	1	2	24
Alabama	4	4	4	.....	.....	1	3	.....	...	4
Florida	4	3	4	+33	.....	...	4	1	...	5
Mississippi	17	14	13	— 7	9	...	4	...	2	15
Texas	1,646	1,595	1,565	— 2	1,280	100	185	149	317	2,031
East Texas Field	105	97	88	— 9	63	9	16	22	18	128
East Texas Border Counties	37	21	30	+43	25	3	2	4	5	39
Rest of East Texas	56	43	48	+12	27	11	10	1	8	57
North Texas	202	256	267	+ 4	212	13	42	19	71	357
South Texas	300	459	461	+ 0.4	378	48	35	33	45	539
Corpus Christi Area	.....	309	317	+ 3	260	31	26	21	33	371
Laredo Area	.....	84	89	+ 6	71	12	6	6	10	105
San Antonio Area	.....	66	55	—17	47	5	3	6	2	63
Texas Gulf Coast	192	139	139	....	129	3	7	22	48	209
Texas Panhandle	170	131	109	—17	89	3	17	25	13	147
West Texas	416	386	361	— 6	314	10	37	22	102	485
West Central Texas	63	63	62	— 2	43	....	19	1	7	70
Utah	.....	4	4	...	2	...	2	...	...	4
Wyoming	59	68	60	—12	28	8	24	4	10	74
Total United States	4,089	3,842	3,800	— 1.1	2,814	382	604	311	668	4,779

Wrinkle Bending Pipe

METHOD HAS MANY ADVANTAGES IN THE FABRICATION OF OVERLAND PIPE LINES

A RELATIVELY new method for bending pipe has been developed which promises considerable economies in the field fabrication of overland pipe lines. This method, known as "wrinkle-bending," consists in heating with the welding flame one or more narrow bands at right angles to the pipe and extending about half way around the pipe. The pipe is then bent either by hand or by means of a tractor or bending rig until the heated sections buckle sufficiently to give the pipe the desired curvature.

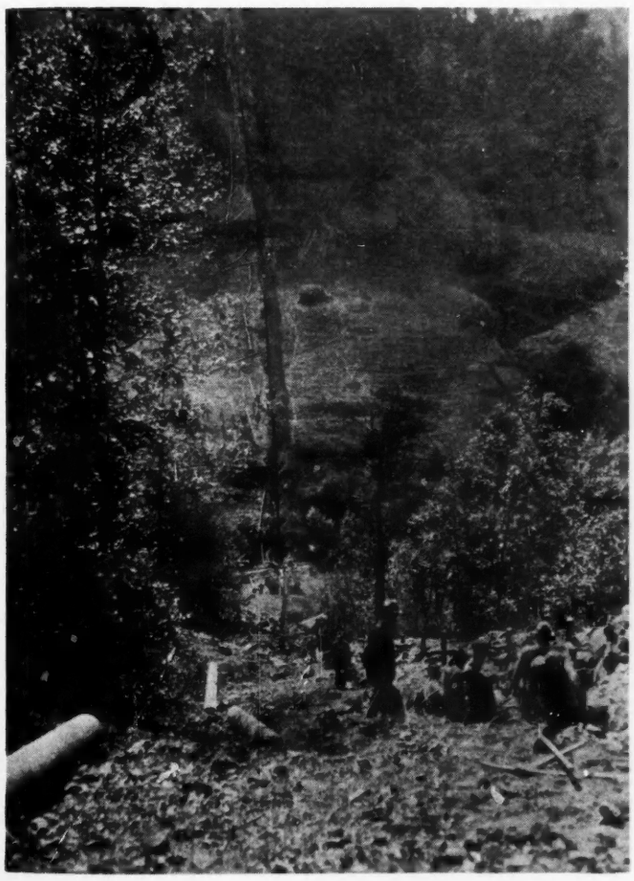
Although the process has been known and practiced for over a quarter of a century, it is only recently that its use has become widespread.

The accompanying illustrations were taken on a 45-mile natural gas line in West Virginia. Because of the extremely mountainous country, this 12-inch diameter line averaged a bend every 60 feet, with an average of three wrinkles to each bend.

Two bending gangs worked on this line and each consisted of eight men as follows: one foreman, two heaters, four set-up men or riggers, and one teamster. The foreman has charge of the work and sees that the required bends are properly made. The teamster, with a team of horses, hauls the pipe into convenient position for bending and also hauls the oxygen and acetylene cylinders along the line. The riggers handle the bending rig, while the two heaters operate the blowpipes.

One of the illustrations clearly shows the type of pipe bending rig used on this line. A stiff leg with a saddle is attached to one end of the pipe by a chain and to the other end by a cable. The cable passes through a pulley and around a winch secured to the stiff leg. In this particular illustration the foreman has just indicated that the pipe is at the proper bending temperature and the two men just behind the heater in the foreground are beginning to take up on the

Preparatory to bending, two operators heat a narrow band at right angles to the pipe.



Because of the extremely mountainous country, this 45-mile gas line in West Virginia averaged a bend every 60 feet.

winch. The ends of the pipe are thus drawn out of line a sufficient amount to produce the desired wrinkle. Additional wrinkles are then made to give the pipe its total required bend.

Where Applicable

Wrinkle bending is analogous to shop-fabricated creased bends, only the wrinkle or crease is not so pronounced. As a rule, each wrinkle is used to produce only a slight change in direction of the pipe. When the bend is more pronounced a series of wrinkles are used to give an easy flow, long sweep bend. The wrinkles project outward, thus providing a full opening throughout the bend. The method has found its greatest favor in mountainous country where, obviously, the greatest amount of bending is necessary, and where cold bending is difficult to handle because of the rough terrain and heavy equipment required.

Wrinkle bending is applicable from the smallest to the largest size pipe. Excellent results have been obtained on 4- and 6-inch pipe and equally good results have been obtained on the larger sizes ranging all the way up to 22-inch. The method is adaptable to both heavy wall and light wall pipe and can be performed in the shop as easily as it can in the field.

Advantages of Wrinkle Bending

The advantages of wrinkle bending are many. Particularly important is that the pipe wall is never thinned from the original thickness. On the contrary, compression squeezes the pipe so that the metal at the wrinkle is actually slightly thicker than the original wall. The metal on the outside of the bend opposite the wrinkle retains its original thickness.

The near bend in this section has two wrinkles, while the far bend has four.

Wrinkle bending lends itself readily to correction, since too much bending in one or more wrinkles may be corrected simply by reheating and applying a reverse pull or sag. Furthermore, the pipe is not stressed as in cold bending because the bend takes place only at the point where the steel has been softened by heating. The facility with which bends are formed makes for the ready fabrication of gradual or long sweep bends that are so desirable in overland pipe line construction.

Another important feature of wrinkle bending is its low cost. Equipment costs, labor costs and material costs are all low. Also, the method permits bending even before the ditch is cut. Wrinkle bending fits in very well with the all-position or stab-on methods of welding.

Large degree bends even up to 180° are readily fabricated by wrinkle bending. These may be made in the shop and then fitted on the job. Pumping station piping equipment is an example of this type of work.

Again, where the terrain is very rough and the pipe size very large, wrinkle bending can be carried out adjacent to the railroad siding where the pipe is being unloaded. The bent sections are then hauled out by the pipe stringing trucks and placed where needed. This is of special value in composite construction.

Procedure for Small Diameters

As a rule, only one blowpipe is required for the pipe under 6-inch. The large capacity blowpipes designed for heavy heating operations are particularly suitable for wrinkle bending. Additional equipment consists of either a manifolded supply of dissolved acetylene,

A general view of the pipe bending rig. The two men in the center are taking up on the winch, thus causing the heated section to wrinkle.

Thirteen wrinkles were required to give this pipe section its total bend of 35 degrees.

An angle-finder assures that the bend in the pipe conforms with the angle in the ditch.

or an acetylene generator, and a supply of oxygen. Usually, both gases are hauled along the right-of-way on a sled. Trained welding operators are not required, as the process involves only a simple heating operation.

In field fabrication, the bending or laying foreman decides where a bend is necessary. This may be a side bend, sag bend, or overbend. If the pipe is of small diameter, 6-inch, for instance, no additional bending equipment is necessary. The section of pipe is laid on skids across the ditch and the foreman marks the point at which the pipe is to be bent. The heaters, standing on each side of the pipe, then proceed to apply heat to this point around approximately one-half to two-thirds of the upper circumference of the pipe. The band of heat should be 2 to 3 inches wide at the top of the pipe and should taper down to zero on the two sides. The pipe should be heated to a bright red.

When the pipe is at the correct temperature, the section should be rolled over quickly so that the heated portion is on the underside. At the same time, one of the pipe gang should throw the skid on which one end of the pipe is resting into the ditch. This man should then press, if necessary, on his end of the pipe while the other end is being held securely by two additional men. The weight of the pipe itself is usually sufficient to form the wrinkle, and the man in the ditch often finds his chief work in holding the sagging pipe to the requirements of the bend.

This operation is repeated until sufficient wrinkles have been formed to give the required bend. In general, a wrinkle of 5 to 7 degrees should be the maximum to which the pipe is bent. A greater total bend is obtained by using more wrinkles. Wrinkles may be at any distance from one another depending on the angle of the bend and the diameter of the pipe, although it is more desirable to produce long sweeps wherever possible rather than short angle bends.

The entire procedure should not require more than 2½ to 3 minutes. All three types of bend—sag, side and overbend—may be readily produced in one section of the pipe.

Procedure for Large Pipe

Two blowpipes should be used for pipe 6 inches in diameter and over. Also, additional bending equipment is necessary if the pipe is large or lying alongside the ditch or on the ground prior to ditching. A tractor, A-frame or bending rig can be used. If a tractor is used, it should be equipped with a stiff leg. The tractor should run part way onto the timbers which hold the pipe in place, the stiff leg set in position, and the chain block attached. The chain block in turn is fastened to the pipe. The pipe should then be heated in the usual manner with the two blowpipes and, when the proper heat is reached, the free end should be pulled up by means of the chain block.

Another method for handling this type of work is to use a tripod or A-frame equipped with block and tackle. One end of the pipe should be temporarily anchored, the heat applied, and the free end then hoisted to form the wrinkle. Still another method using the same equipment is to hoist the pipe first, place one or two men at one end to steady the pipe, and one or two men at the other end to press down. Heat is then applied on the underside of the section, and the wrinkle is formed by the weight of the sagging pipe.

If the pipe is of the usual low carbon type, the bend can be arrested at any time by sudden cooling with water. However, this practice is not recommended for high strength pipe. In wrinkle bending longitudinally welded seam pipe, the heat should preferably be placed 180° away from the seam.

Where just a small angle is required, the wrinkle need not necessarily extend the full half of the circumference. The flexibility of the process permits the foreman to put in just the right amount of bend at just the right places.

The wrinkles in this 12-inch diameter pipe are spaced at intervals of 10 inches with each wrinkle averaging a 2- to 3-degree bend.

Measuring, Sampling and Testing Crude Oil

IN THE MID-CONTINENT FIELD TO COMPLY WITH A. P. I. CODE 25

By OTTO D. STALLARD, JR.,
Superintendent of Gaugers,
Magnolia Petroleum Company

THE WORD "gauger" is defined for us by Webster as: "One who ascertains the contents of casks, an officer of excise, familiar with the art or science of measuring the contents of vessels of capacity."

The so-called art of gauging dates back to Biblical times. In ancient Egypt, for instance, water was measured out and distributed by various crude methods for the purpose of irrigation in arid territories. Animal hides and earthen containers were employed for transportation, all of which had estimable capacity. The persons in attendance might well have been termed gaugers even though their particular business came under some other explicit trade name.

The discovery of petroleum in commercial quantities created the need for not only some means for transporting the oil, but for measuring it accurately. The measurement of crude oil is done exclusively in containers, such as tanks, barrels, etc., the exact contents of which must be known. These operations are performed by "Tank Strappers" who measure the tanks in circumference and height, reporting all material within that would displace oil and the "Field Gauger" who, in addition to reporting the quantities of the oil bought or sold also takes the samples and makes the necessary tests.

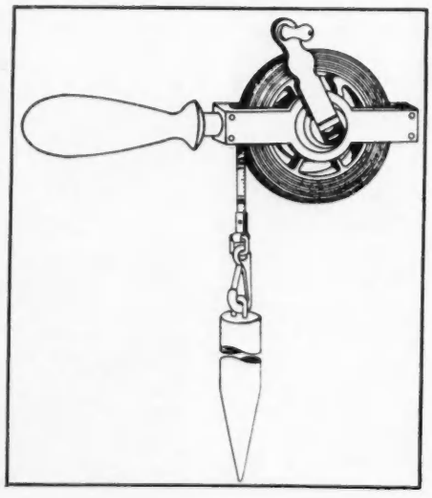
The field gauger is, in reality, the field representative of the crude oil purchaser and is responsible for the crude oil's safe transportation in its entirety from the producer to the purchaser.

The measuring and inspection of crude oil must be as accurate as is humanly possible and the results fairly and impartially ascertained.

After the oil is inspected and it meets the requirements of the purchaser, the tank or tanks are connected to the purchaser's line, through which the oil is transported either by gravity or pump to the nearest pipe line station.

It is the gaugers responsibility to see that the field pumps are in good mechanical condition, capable of handling the oil to destination without loss.

FIGURE 1
Gauge Line



He should, at regular intervals, inspect the lines under his supervision, making any minor repairs not requiring a special repair crew, in order to eliminate any possible loss of oil.

It is apparent that the gauger must rely upon his own judgment to a great extent and many decisions must be determined by exercise of his own discretion.

Standard Gauging Equipment

Accurate instruments have been developed for testing the various grades of oil fround throughout the United States. A complete set of these instruments comprises quite a field laboratory, which the gauger must carry with him on his daily rounds. The purpose of this article is to describe the current operations of a modern field gauger and the equipment necessary to perform his tasks.

The field gauger of 1938 is furnished the following equipment:

Steel gauge line with 20 oz. bob 18'-33' or 44' long.
Oil thief, with extension rod, sample cocks, hatch hook, basic sediment gauge and windshield for the hydrometer test.
Bottle thief.
Cup case thermometer 0 to 150° or 180° in 1° graduations.
Case for thermometer.
Combination hydrometer-thermometer range 18-33, 33 to 48 and 48 to 63 in tenths, thermometer range 0 to 150° in 2° graduations.
Hydrometer case.
Test can or composite sampler.
Hand centrifuge machines, or six

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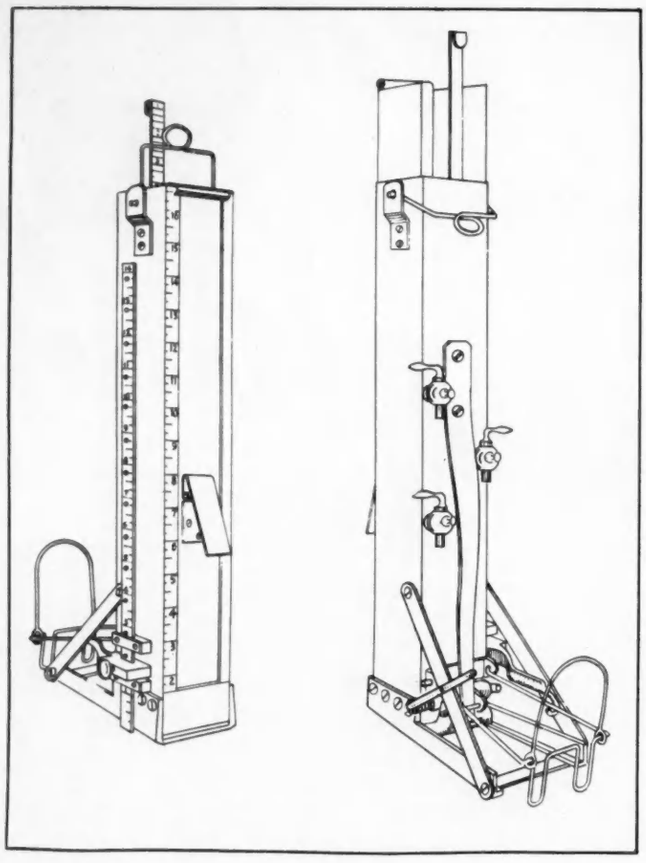

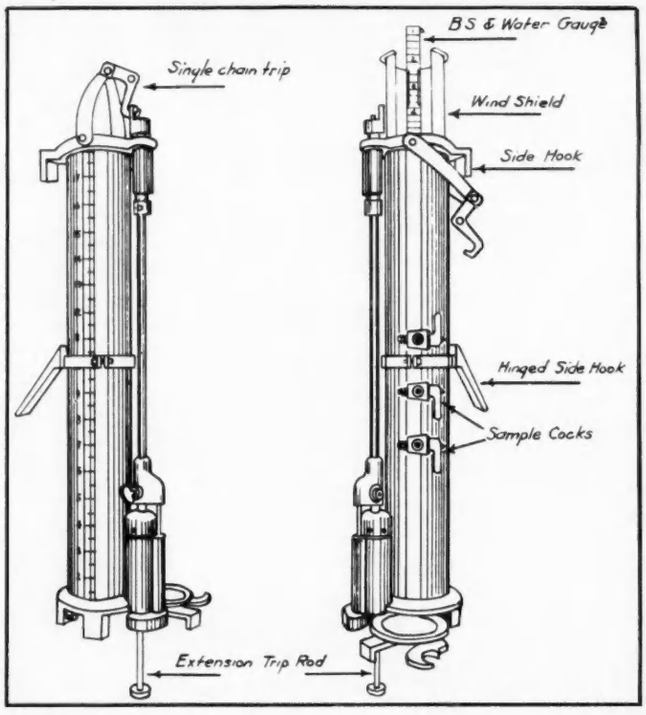

FIGURES 2-A and 2-B
Bottom closure type oil thief

volt electrical centrifuge machines.
100%-12.50 ml. field centrifuge tubes, or 100%-100 ml. A.S.T.M. centrifuge tubes.
Thermometer 0 to 220° in 2° graduations sample and bath.
Sample heater (type required).
Settling tube (furnished when required).
Test by sight glass.
Gaugers wrench for opening and closing lock stops.
Gaugers equipment case. (For carrying gauge line, bob, thief, thermometer, hydrometer, composite sampler, centrifuge tubes, test glass and waste).
Seal carrier (regulars and specials).
Safety lantern.
Equipment rack for sedans or coaches or coupes.
Gasoline dispenser.
Strapping kit.
Circumference marker for bolted and flanged tanks.
Sectional ladder.
Ladder rack for carrying sectional ladder on the front or back bumper, meets state regulations.

The equipment rack is mounted in the trunk or rear of the gaugers car and the equipment placed there-in, not in a hap-hazard fashion but in a more or less uniform manner.

The modern gauger follows an established routine in gauging, sampling and making the tests. He cleans his equipment after each inspection, completing his daily routine with the equipment as clean as when he started out in the morning.

In order to eliminate errors or at least keep them to a minimum, every gauge, reading and test should be double-checked.

The following is a description, illustrated by drawings, of typical gauging equipment used in the Mid-Continent field:

Gauge Line

The gauge line is used for measuring the depth of the oil in the tank before and after the run is made (Figure 1). Steel lines, one half inch wide, of heavy material, in lengths of 18, 33 and 44 feet, with 20 ounce bob is recommended. The 18-foot line is used on field tanks with a 16-foot oil height or less; the 33-foot line on 55,000-barrel tanks with an oil height of 31 feet or less; the 44-foot line is used on tanks of 80,000-barrel capacity or under. The reason for the special lengths of line, is that the entire line should be cleaned off after each measurement is taken and is kept protected in this manner.

The line may be wiped off with a small rag or piece of waste held between the fingers of the left hand. This permits the gauger to wipe off the line and wind it up in one operation.

The bob should never be carried on the line but disconnected after each gauge or measurement.

Thief

The bottom closure type thief (Figures 2-B and 2-A) is used for sampling, either for the "middle spot," which is a single sample taken from the center of the oil in the tank, the "composite spot," which is three or more samples taken from one foot below the surface of the oil to the level with the out-let connection and the bottom of tank test, taken directly off the tank bottom.

The 16½-inch length thief is recommended, it is long enough to permit hydrometer readings to be taken in the thief, also permits samples to be taken from the outlet connection, which range in height from 10 inches to 14 inches. Sample cocks of the open flow type are attached to the thief so that samples may be taken at any desired depth without disturbing the other contents. A wind-shield is provided to assist in taking the hydrometer reading, a b.s. & w. gauge which can be used to check the actual amount of sediment on

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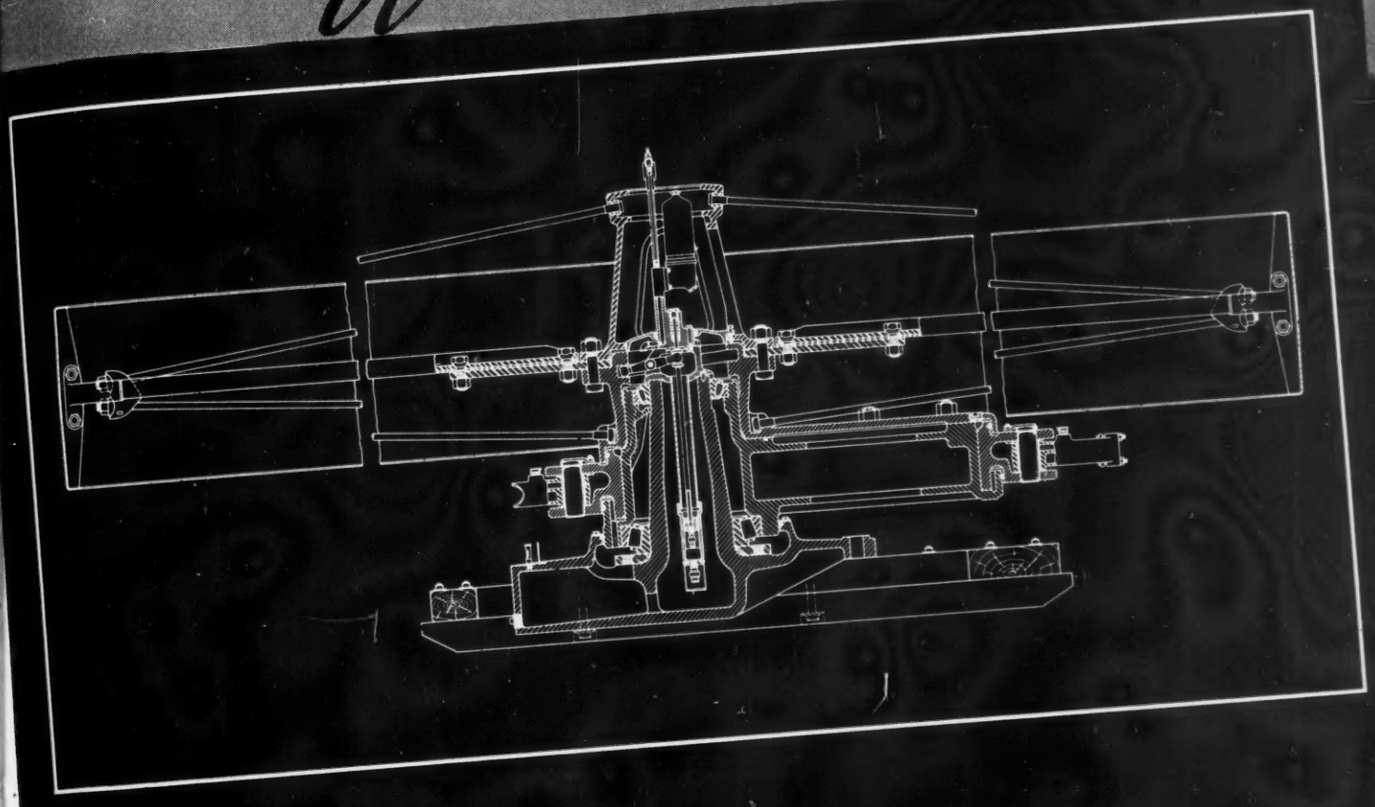

1 LUBRICATION COSTS ARE LOWER. Oil is kept fresh and clean by means of the enclosed dust proof purolator equipped oiling system.

2 MAINTENANCE IS REDUCED. The constant flood of clean oil to all working parts, the very generous wearing areas, the replaceable eccentric strap, bronze bushings, and the all welded band wheel construction make possible a very low maintenance.

3 DECREASED POWER CONSUMPTION. The reduction of friction through the use of Timken Roller Spindle Bearings, the improved lubrication system, and lasting maintenance of original alignment all contribute to a greater efficiency in the use of power.

4 ERECTION COSTS ARE LESS. The permanently diametrically correct quickly aligned bandwheel rim sections, the ease of assembly on the fixed circular driving plate and the self-contained alignment of the spindle and bearings effect important savings in erection costs.

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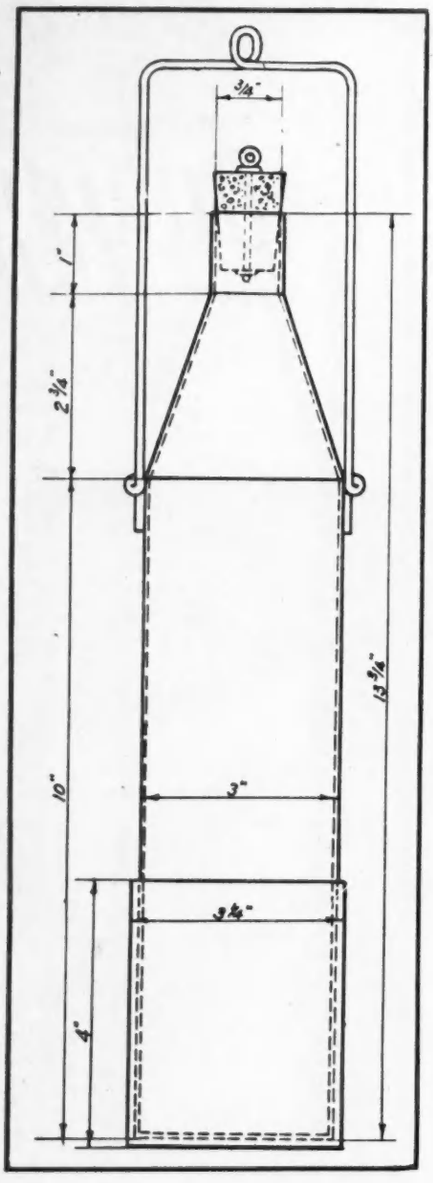
FIGURE 3
Bottle type thief



the tank bottom, and a hatch hook for hanging the thief in the hatch while the hydrometer reading is being taken and the centrifuge samples are being obtained, permitting all oil from the thief to drop into the tank instead of on the roof of the tank when the hatch hook is not provided.

Sash cord, of the close woven, waxed type, size No. 6, is used to raise and lower the thief in the tank, it is easy on the hands of the gauger and can be stripped of oil by sliding through one hand, as you come out with the sample. The cord should be flagged or marked every two feet so that the samples can be obtained at the correct depth and tank bottoms thiefed correctly.

Bottle Thief

The bottle type thief (Figure 3), may be used for either "middle spot," "composite spot" or "running average samples." It is not furnished as regular equipment, but may be substituted for the bottom closure thief when required or desired.

Tank Thermometer

The cup-case thermometer is used for taking the tank temperature of the oil. (Figure 4.) The stem is etched in single degree graduations and a range of 0 to 150° or 180° is used.

A No. 3½ Masons Cord should be used to suspend the thermometer at the desired depth in the tank. The cord should be flagged or marked every two feet so that accurate location of the thermometer can be made.

Angle or "L" screws should be placed in the top and bottom of the

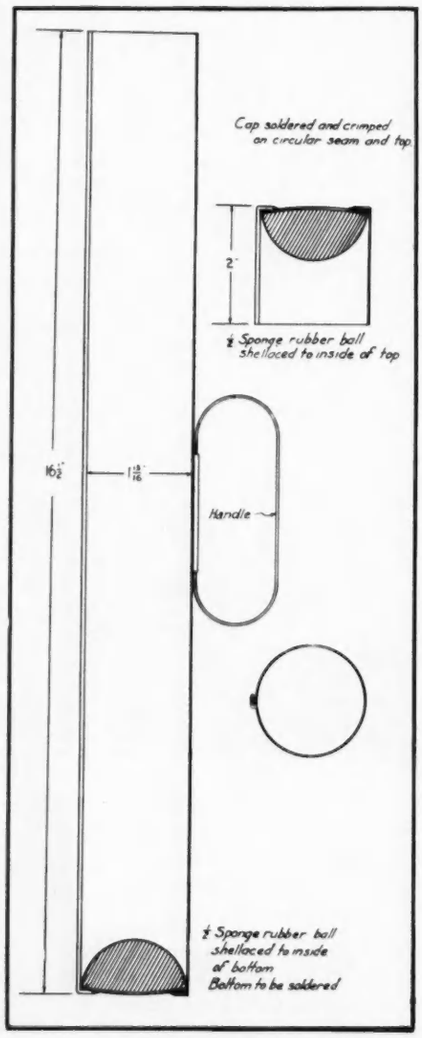
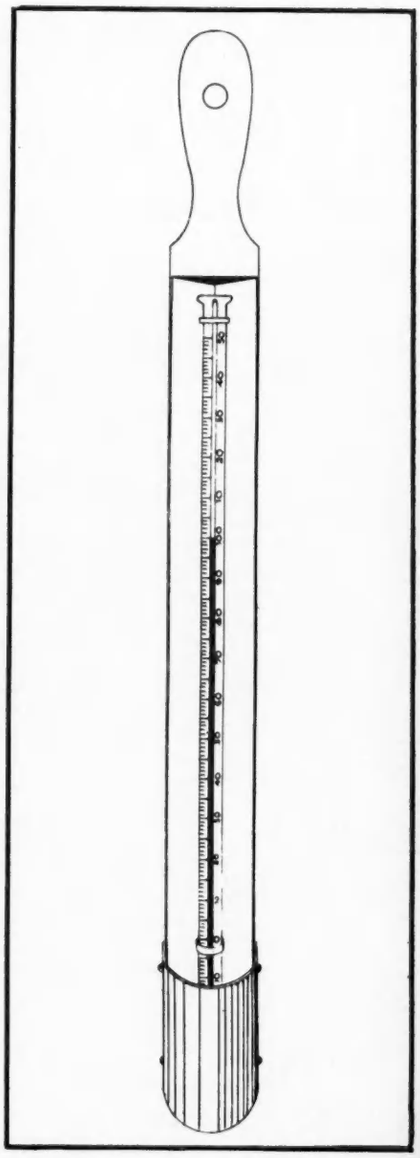

Cap soldered and crimped on circular seam and top
2"
½ Sponge rubber ball shellaced to inside of top
16½"
1 13/16"
Handle
½ Sponge rubber ball shellaced to inside of bottom
Bottom to be soldered

FIGURE 5
Case for cup case tank thermometer.

FIGURE 4
Cup case for tank thermometers.

10" size: Scale 0 to 150 degrees, graduated to each degree over entire scale. (For general use). 12" size: Scale plus 0 to 180 degrees.



wooden case, on the righthand side, for winding up the thermometer cord when not in use.

Thermometer Case

A thermometer case (Figure 5) should be used to carry the cup-case thermometer, as a protection against breakage. The rubber bumper on top and bottom of the case protects the thermometer end wise and the cord wound up on the "L" screws protects it sidewise.

Hydrometer-Thermometer

A combination hydrometer-thermometer is used for testing the gravity of the oil (Figure 6). It is made in the following gravity

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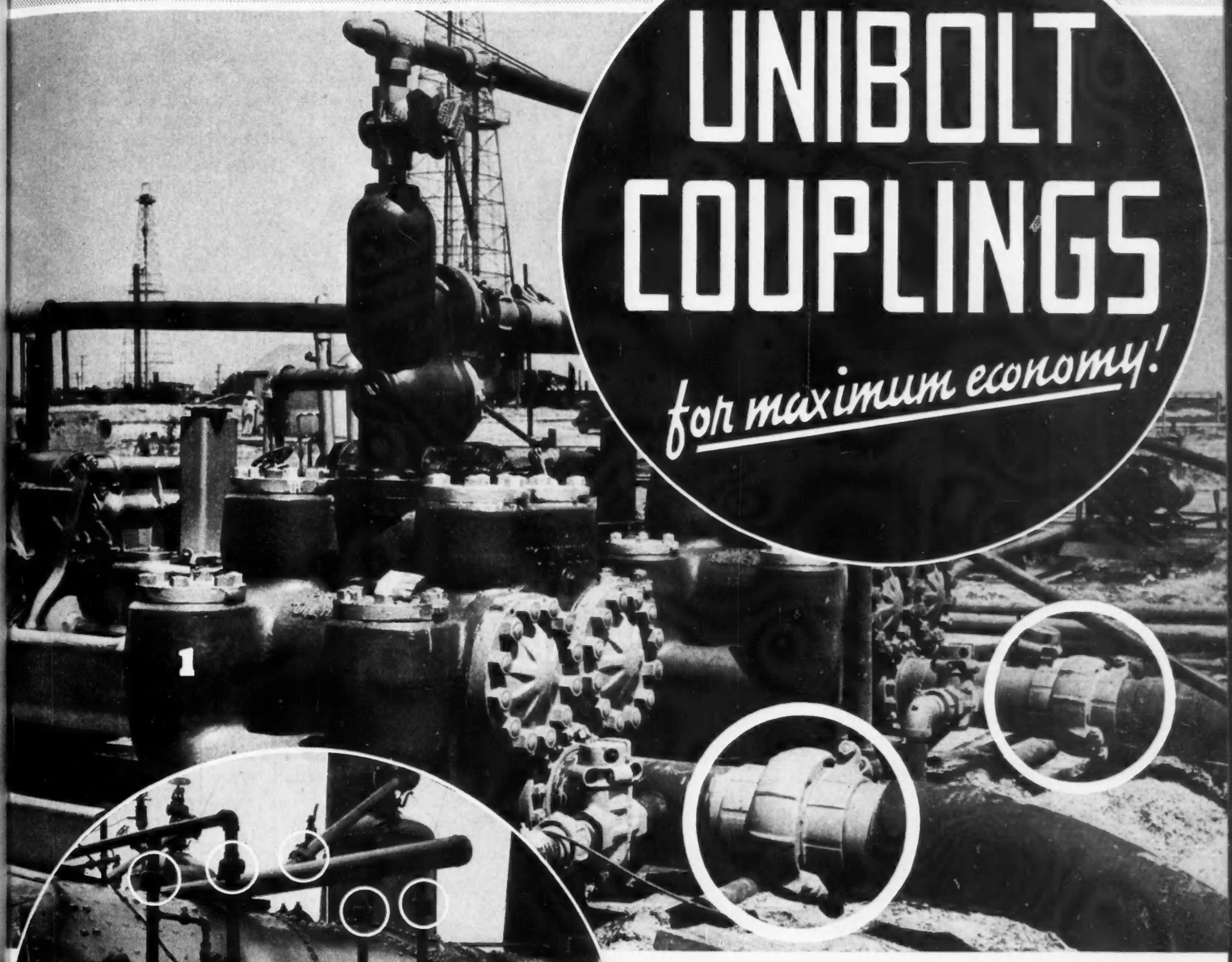

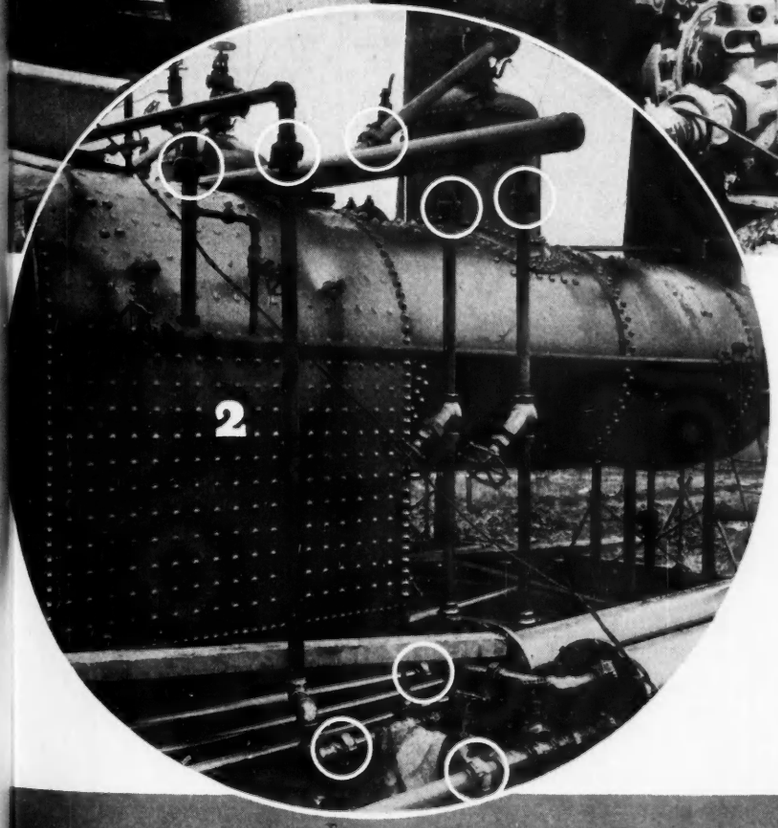

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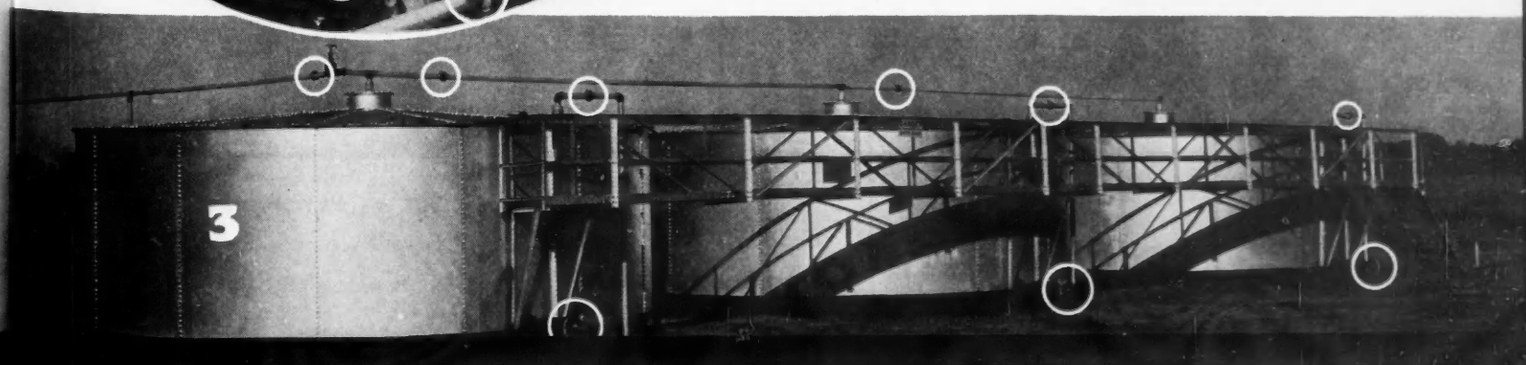


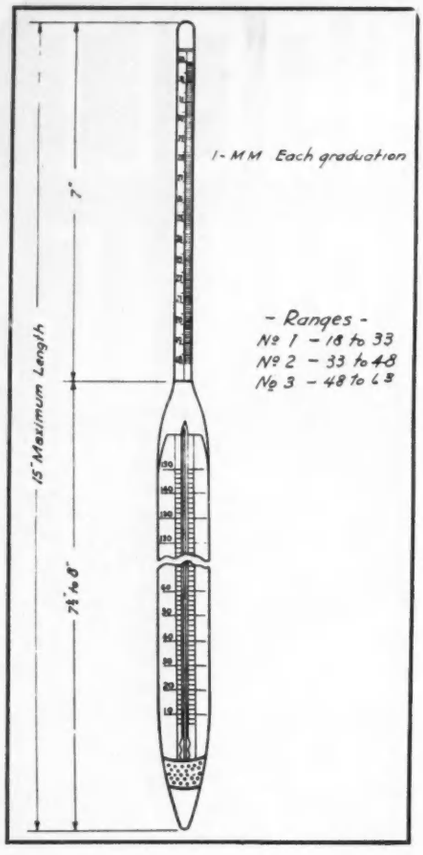


FIGURE 6
Hydrometer thermometer.

ranges to suit the crude or distillate being tested, 18 to 33, 33 to 48, 48 to 63 and 63 to 78 in tenths, with a temperature range of 0 to 150°.

A distinctive mark should be etched or fused into the glass at the top of the gravity range on the stem, which acts as a check against paper slipping inside the stem.

The graduations on the gravity range should be to the tenth of a degree and not less than one (1) mm. wide to conform to the Bureau of Standards specifications.

The thermometer in the base should have a range of 0 to 150° in two degree graduations and should have the base etched at 32° to act as a check against the paper slipping inside the base. When a metal scale is used for the thermometer reading, it should be anchored in the metal ballist to insure accuracy.

Hydrometer Case

The hydrometer case (Figure 7) should be lined with a good grade of sheep-skin, protected at each end with a rubber bumper. The lining should be kept as dry as pos-

FIGURE 8
(Right, below)
Test can.

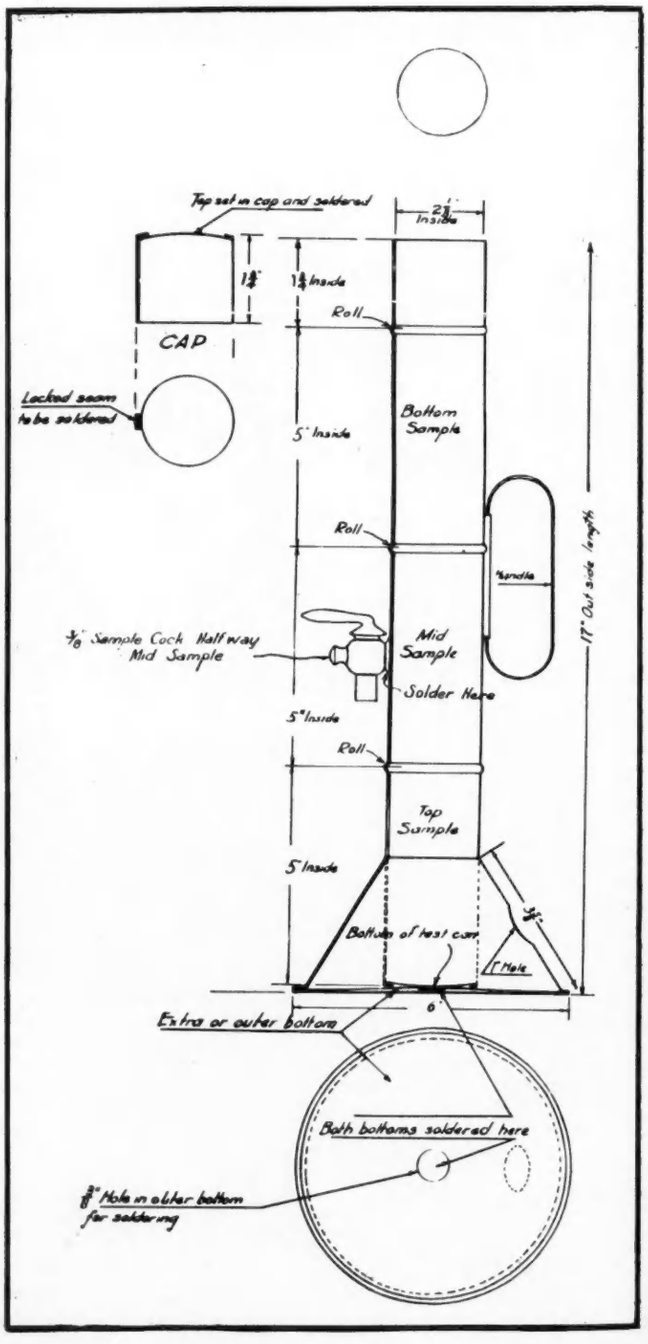
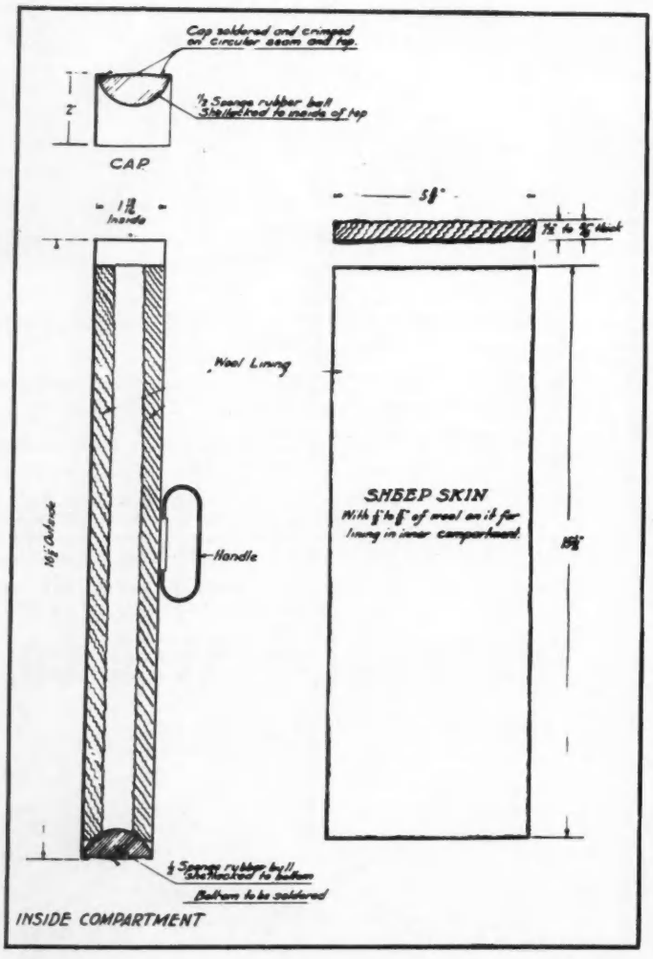


FIGURE 7
(Left, below)
Hydrometer case.



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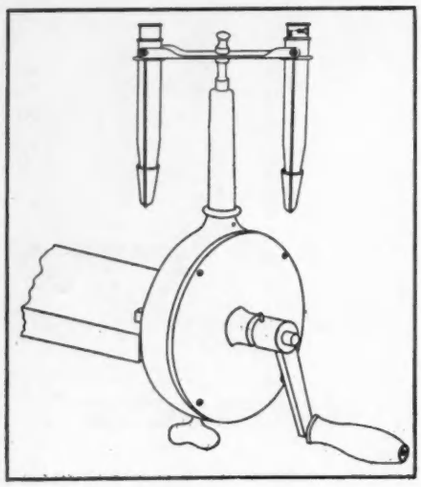


FIGURE 9-A
Hand centrifuge 100% A.P.I. tubes.

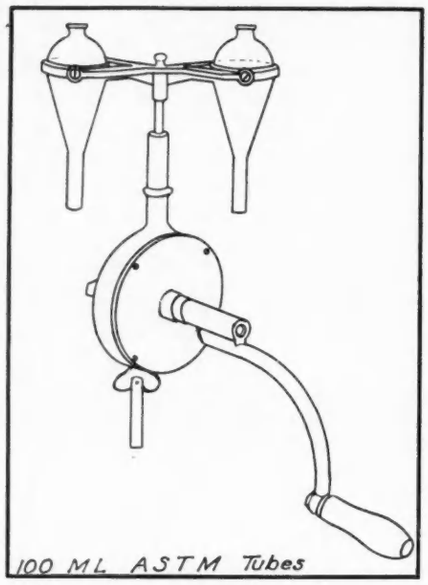


FIGURE 9-B
Hand Centrifuge.

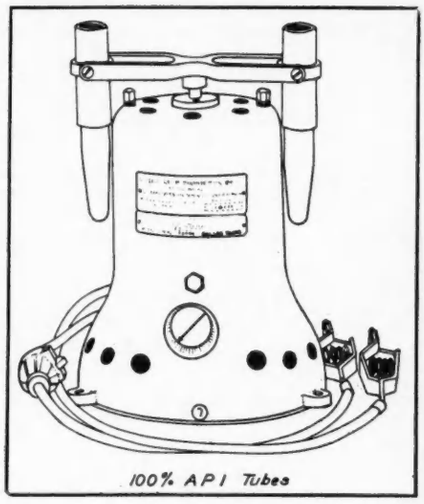


FIGURE 9-C
Six-volt electric centrifuge.

sible. This can be done by cleaning the hydrometer thoroughly after each test.

Test Can

The test can for the composite sample (Figure 8) may be used to take the hydrometer test either from the "middle spot" or the "composite spot" samples. An open flow sample cock permits taking the sample for the centrifugal test.

The test can may be placed in a hot water bath to bring the sample up to the required temperature for a satisfactory hydrometer reading in paraffin base oils.

The bottom of the test can may be weighed down with oil placed in the base through the hole in the side to keep it steady or it may be equipped with a hatch hook so that the test can may be hung in the gauge hatch. A windshield similar to the one used on the oil thief placed in the test can keeps the hydrometer steady for the test in windy weather.

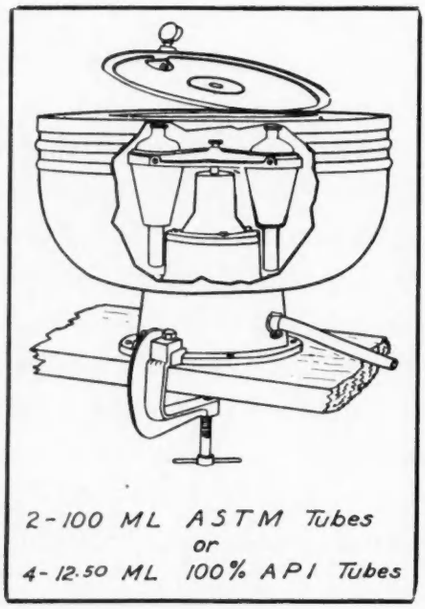


FIGURE 9-D
Six-volt electric centrifuge.

Centrifuge Machine

The centrifuge Machine is used to determine the foreign elements in the oil. A hand or electric six volt machine (Figure 9-A-B-C-D) capable of making the required revolutions per minute is suitable for field use.

The electric centrifuge machine is preferred, as the original cost is the only cost, if the machine is given the necessary attention. It only takes from eight to ten amperes with the centrifuge loaded, which is no more than the average pair of headlights take.

Centrifuge Tubes

Either the 12.50 ml. 100 percent A.P.I. centrifuge tube (Figure 10) or the 100 Ml 100 percent A.S.T.M. centrifuge tube (Figure 11) may be used for the tests of crude oil in the field.

All tubes purchased should meet the specifications of the A.P.I. or the A.S.T.M. This insures an accurate field test that can be checked and double-checked with very little variation.

Sample and Bath Thermometer

In order to bring the centrifuge sample and bath up to the A.P.I. and A.S.T.M. requirements, a thermometer (Figure 12) with a range of 0 to 220° marked in 2° graduations, of the pocket type is used. All paraffin base oils have a certain congealing point and the sample for the centrifugal test should be kept above this point for a true reading of the b. s. & w. at the finish of the grind.

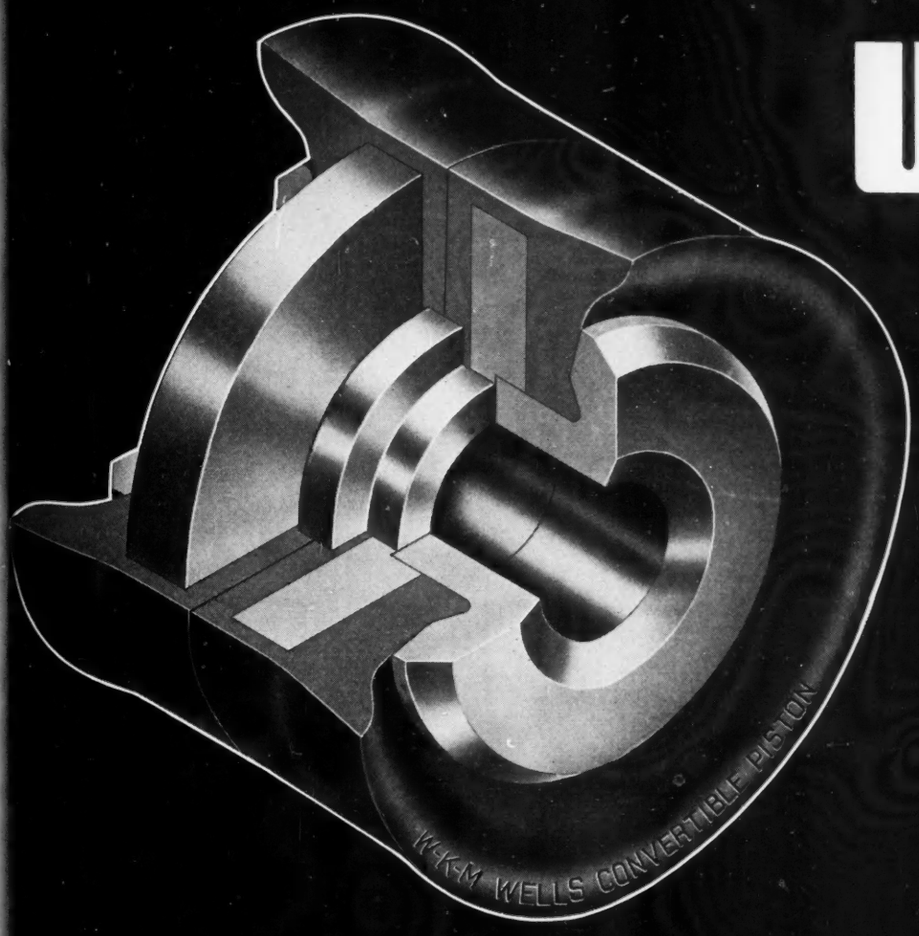
Sample Heater

A sample heater of the therm-a-jug (Figure 13) or the car type heater (Figure 13-A-B) should be used to heat all centrifuge samples to comply with the A.P.I. and A.S.T.M. specifications.

The therm-a-jug is used only in small districts where only a few tests are required while the car type heater can be used with either type of tubes, for any size district, summer or winter, for an indefinite period. The temperature of the bath is kept regular by one or two thermastats on the motor according to the type of car being driven.

Settling Tube

The flat bottom settling tube (Figure 14) may be used at stations or in districts where an im-



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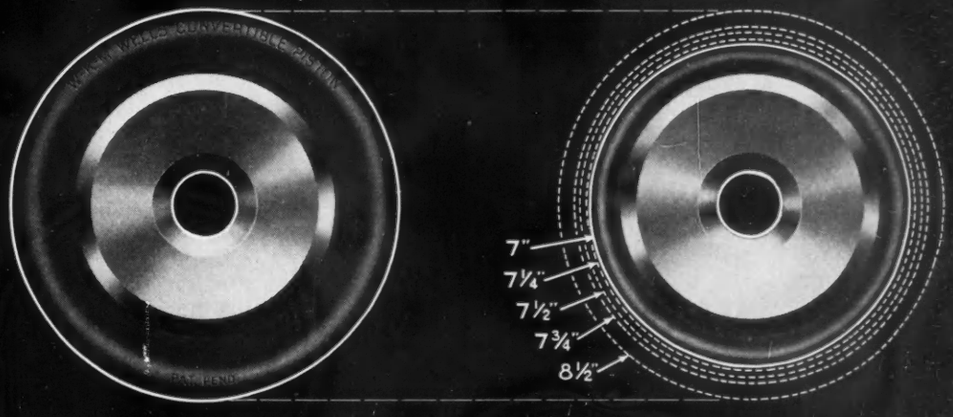

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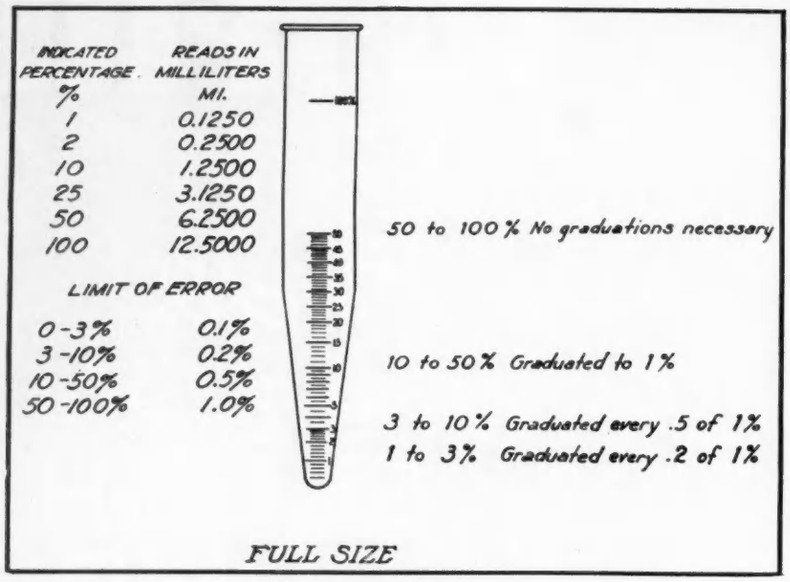


FIGURE 10
100% A.P.I. centrifuge tube.

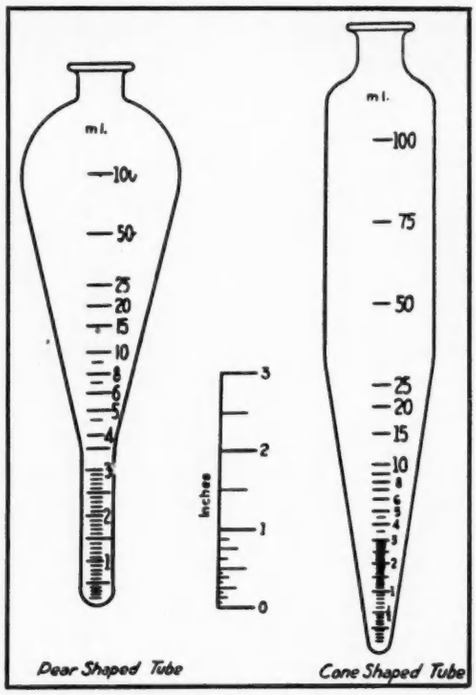


FIGURE 11
100% A.S.T.M. centrifuge tubes.

mediate centrifuge test is not necessary. All samples of the settling tube method must remain in a thermostatic controlled heater at 120° temperature for a 24 hour period to meet the A.P. I. requirements.

This method may also be used as a check against the centrifuge method on the receipts or deliveries of crude.

Test by Sight Glass

A test by sight glass (Figure 15) size 2 inches by 4 inches, made from crystal glass may be used to estimate by sight the percentage of b.s. & w. from a sample obtained from any point in the tank and to also determine from the bottom sample the actual b.s. & w. line.

Crystal white glass that is scratched or off color should not be used for this test.

In districts or fields where the centrifugal test is made on each tank of oil run the test glass is used only for the purpose of checking the percentage of b.s. & w. and keeping the eye of the gauger developed to the point of knowing good or pipe line oil from bad or oil of a higher percentage.

In some districts or fields, no deductions for b.s. & w. are made, therefor the actual percentage of b.s. & w. by centrifuge test is not required and the test glass is used to check the percentage of b.s. & w. in the oil, keeping it on or below certain pipe line requirements and to determine the height of the b.s. & w. line. At any time however there arises any question as to the true percentage of such oil or the height of the tank bottom, the customary centrifuge test is made.

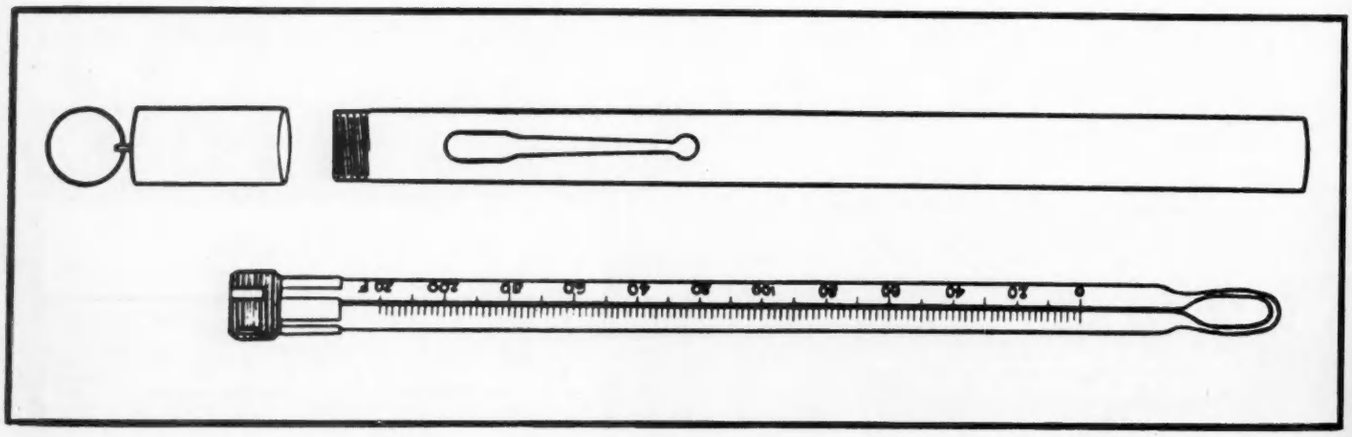
The average gauger can through practice and knowledge of the oil in his district, read the oil on the test glass, then making the centrifuge test, develop his knowledge of such oil where he can read the percentage on the glass to within one or two tenths of one percent of what the centrifuge test actually shows.

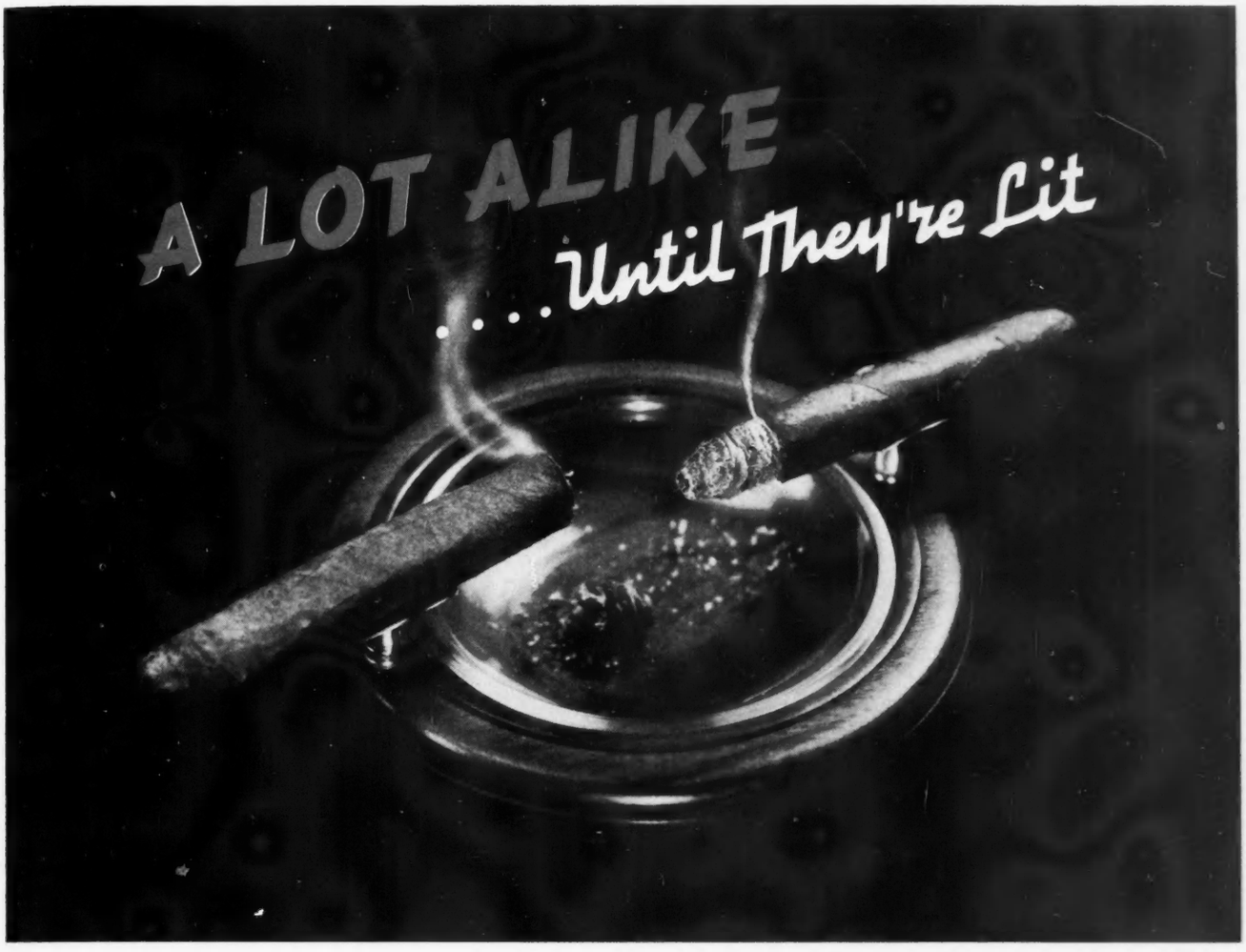
The checking of oil by sight is not intended in any way to lessen or eliminate the accurate methods of the code but it does create an interest in running oil that cannot be had by more or less mechanical means.

Wrench

A 15- to 18-inch or 21-inch gauger wrench should be used to open

FIGURE 12
Sample and bath thermometer.





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and close all lock stops, the size of the wrench depending upon the size of the lock stops.

Where the producer closes the stops for a gauger to keep air out of the line, he should be furnished a wrench made from a three foot length of two-inch pipe with a square cut in the flattened end to fit the wrench side of the core of the lock stop.

Equipment Case

The gaugers equipment case (Figure 16) is designed to carry all the necessary equipment for a satisfactory test of crude oil in the field, it contains the gauge line, bob, thief, hydrometer-thermometer, tank thermometer, centrifuge tubes (type optional), test by sight glass, waste and the run book. It may be carried in one hand, leaving the other hand free in the interest of safety.

By setting the equipment case at an angle to the right of the gauge hatch, a uniform inspection of the oil can be made.

Left handed gaugers necessarily would reverse the equipment in the case and set same at an angle to the left of the gauge hatch when making an inspection.

The compartments are so arranged that one test does not interfere with other tests to follow, allowing the gauger to go through the inspection in a uniform manner, with the least number of movements and no criss-crossing of equipment.

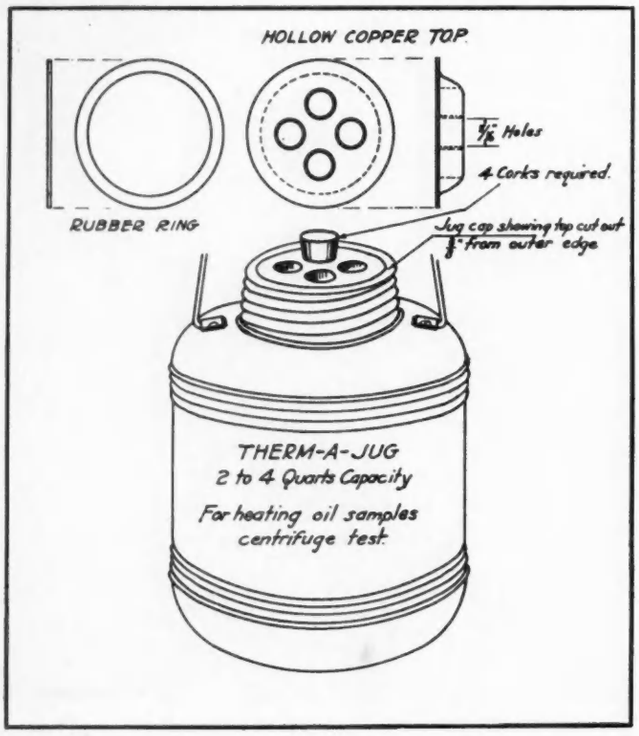

HOLLOW COPPER TOP
⅛" Holes
4 Corks required.
RUBBER RING
Jug cap showing top cut out ½" from outer edge
THERM-A-JUG
2 to 4 Quarts Capacity
For heating oil samples centrifuge test

FIGURE 13
(Left, above)
Sample heater.

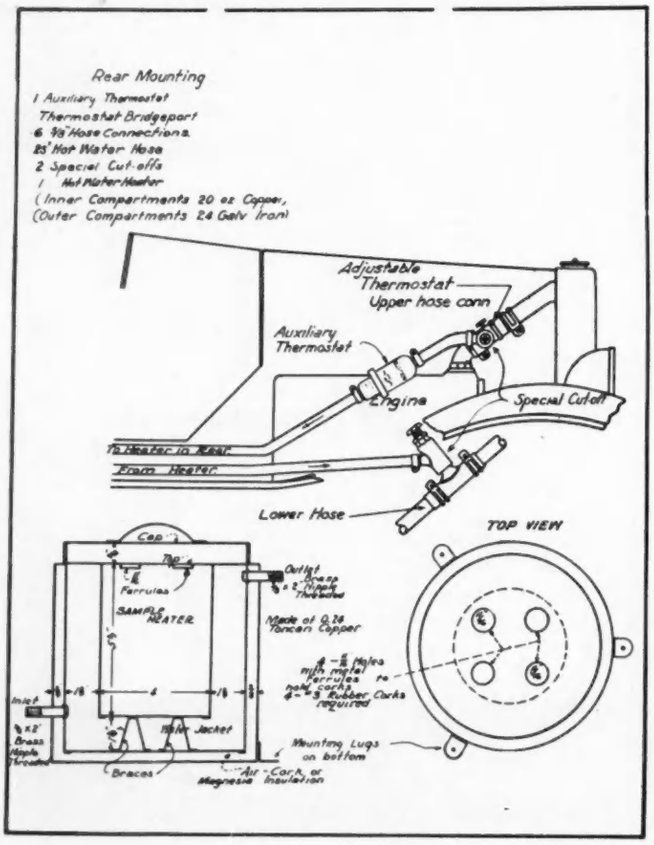


FIGURE 13-A
(Left, below)
Hot water heater for oil samples.

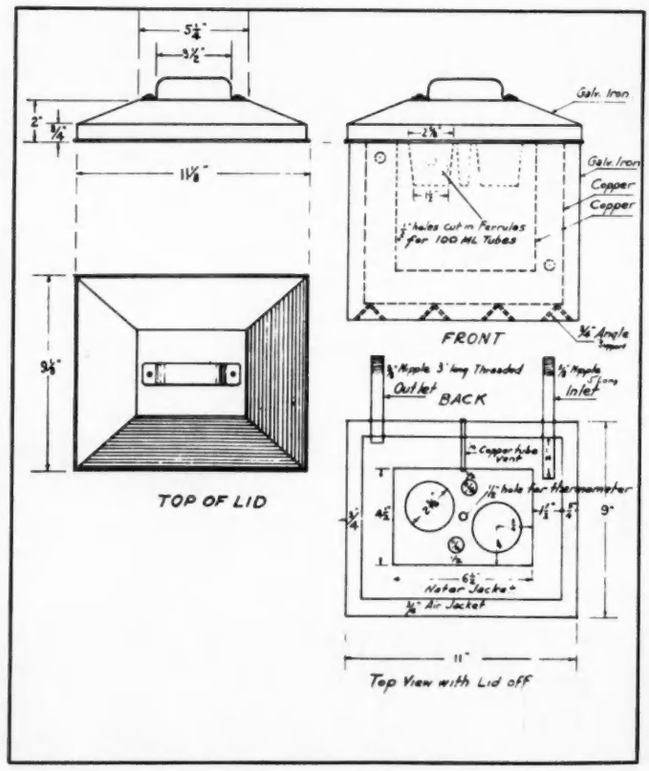
FIGURE 13-B
(Right, below)
100-ML tube heater.

Seal Carrier

The seal carrier (Figure 17) is used to keep the regular as well as the special seals in numerical order. A small washer soldered near the top of the chrominum plated heavy pointed shower bath hook keeps the seals in place.

Lantern

A safety lantern (Figure 18) that is approved by the Fire Underwriters, should be used in taking



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the gauges and making the necessary night field inspection of oil.

Gasoline Dispenser

The gasoline or benzol dispenser is used to carry the supply of gasoline or benzol necessary for the centrifugal test. It eliminates the fire hazard of an open can or bottle and is a means of thoroughly mixing the sample for the centrifugal test.

Equipment Rack

The equipment rack (Figure 19-A-B) is mounted in the trunk of

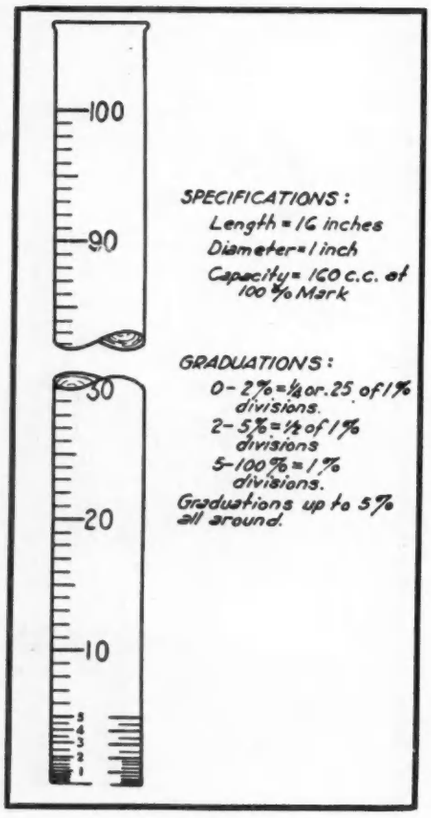


FIGURE 14
Flat bottom gravity settling tube.

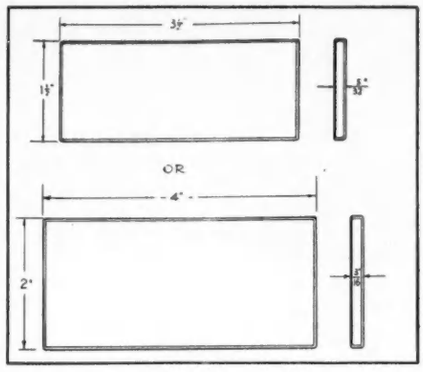
a coach or sedan and in the rear end of a coupe. Compartments are arranged for all the gaugers equipment previously described.

The rack prevents the equipment from moving and jarring around and makes a neat arrangement when properly sprayed with aluminum enamel.

The rear or trunk of the car may be made dust proof by enclosing the rack in three-ply veneer board, painted likewise with aluminum enamel.

FIGURE 15
Test glass.

Sizes adapted for use in determining percentage of oil by sight and B. S. line. Clear glass only to be used. The test with scratched, marred or off color glass is not permitted.



The equipment and rack must be dusted and cleaned thoroughly each day, after the last inspection, so that it will be ready for the next days tests.

Tank Strapper

The word "tank" means a pond, pool, cistern or other circular receptacle made or built by man for holding gas or liquids.

The word "strap" means a narrow band of metal or other material used to circle or fasten about objects to hold them in place.

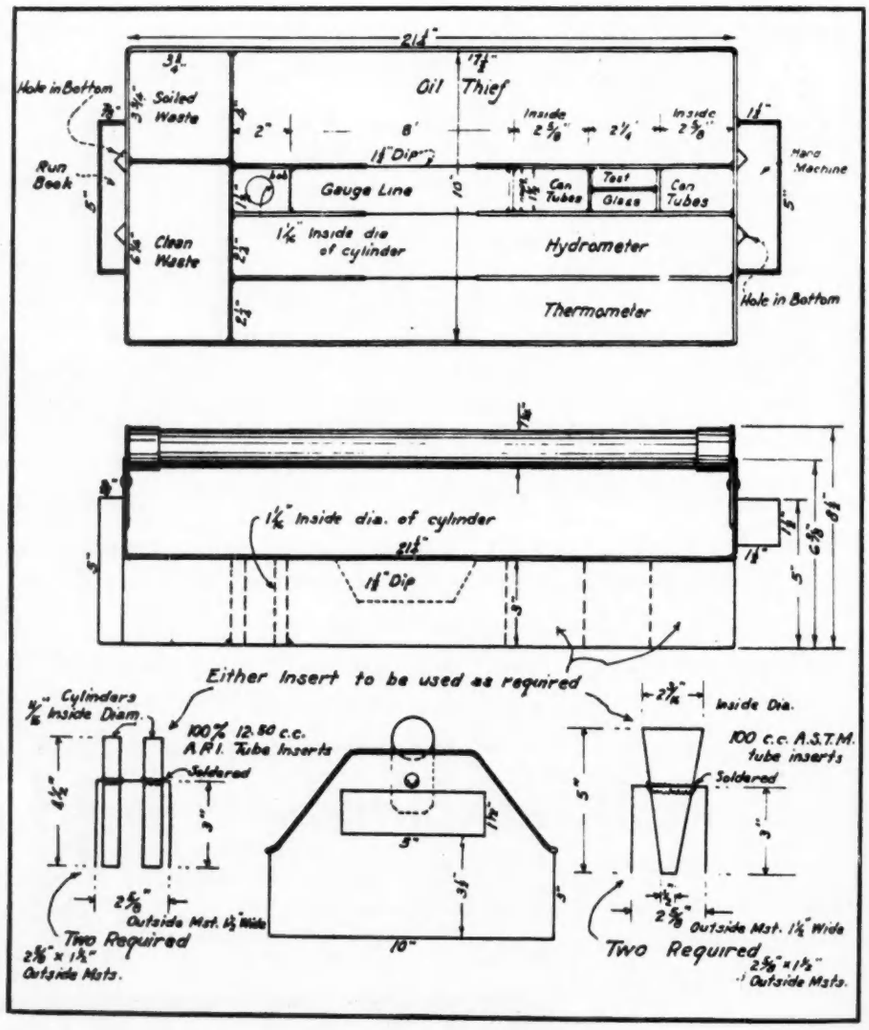
Therefore the word "Tank Strapper" refers to a man who straps or measures tanks to ascertain their capacity in barrels and fractional barrels to the foot and to the inch and fractional inch.

There are four essential points in the strapping or the measuring of tanks, ie:

Circumference.
Thickness of the Shell.
Height.
Material located within displacing liquid (deadwood).

The engineering department of

FIGURE 16
Gaugers' equipment case.



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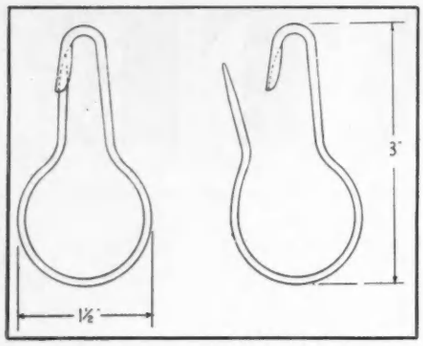


FIGURE 17
Seal carrier, regular and special.

each company must have this information as true as possible to compile correct tank tables.

The American Petroleum Institute has set up complete instructions in its Code No. 25 for strapping all types of tanks in use in the field at the present time. The information was obtained from numerous strappers who measured the original tank of each type in every way, shape and form. The engineers for the American Petroleum Institute determined the capacity from this information and standardized on the fewest possible measurements per ring or per tank required to obtain the true capacity of the tank.

The work of the "Tank Strapper" and the "Field Gauger" is closely inter-woven, more so, since the A.P.I. Code No. 25 was placed into effect, therefore each gauger should be furnished a complete set of strapping equipment and instructions on strapping.

The gauger is in constant touch with conditions in his district and when one or more tanks has to be strapped he notifies his chief gauger and tank strapper who should be present to check all measurements as they are being made. If it is impossible for the chief gauger and tank strapper to be present at that time, the gauger makes the strapping himself and it is checked at a later date by the chief gauger and tank strapper.

A tank strapper cannot be too careful in taking any and all measurements, make it a point to check and double-check each measurement taken.

When properly equipped the average tank strapper can strap as many tanks A.P.I. in a day, with the assurance that they are correct, as can be strapped by the old method, in a more or less haphazard fashion.

A series of tank numbers is furnished each district foreman or superintendent and the strapper-gauger gets his numbers needed from this source.

Three sets of figures are necessary on each tank strapped, ie:

Tank height.
Tank number.
Pipe Line Connection.
thus
16-2
34698
1-2.

The tank height in this case is the oil height or what height the tank can be filled. The strapping number or tank number as it is now called furnishes a complete record as to owner, farm, wells running into same, size and capacity. The pipe line connection is the lowest point that the oil will run out and informs the gauger and pumper as to bottom clearance. When a tank cannot be filled to tank height, due to connections from flow, overflow, or gas lines, cement on the bottom, etc., and additional oil height has to be shown directly above the tank height.

The "Tank Strapper and Gauger" is furnished or has access to the following Strapping Equipment:

Strapping Kit

The Strapping Kit should be filled with the necessary equipment to make a standard or referee method of strapping on any type of tank built according to A.P.I. specifications.

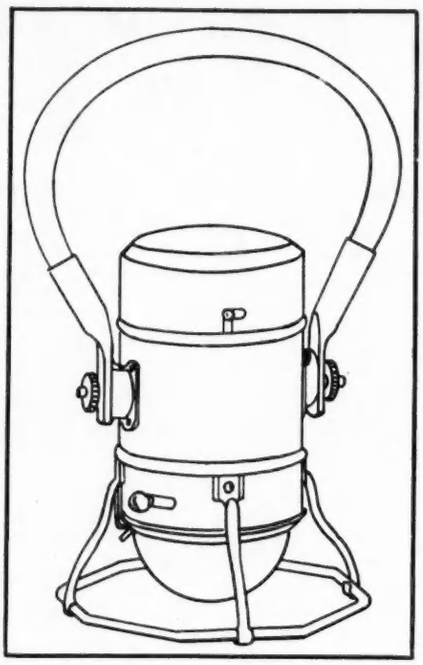
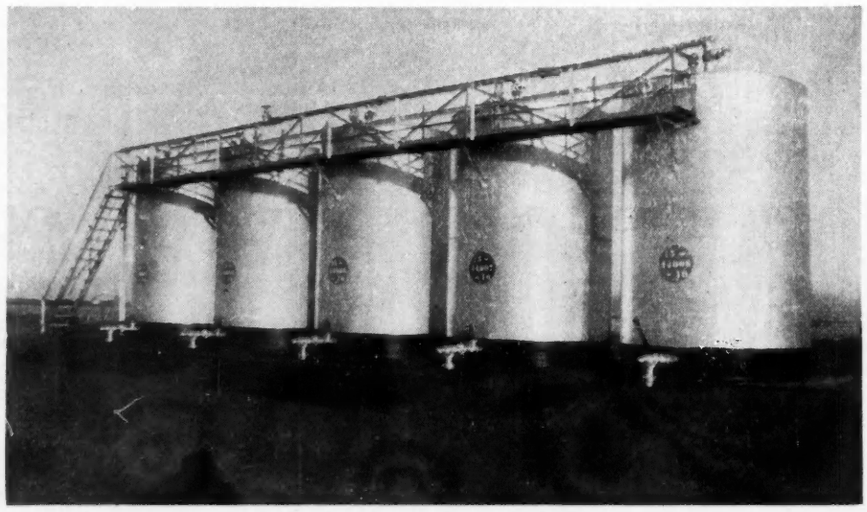


FIGURE 18
Safety lantern.

Necessary equipment in the strapping kit includes one each of the following items:

Metal strapping case; 2½-inch edge scraper; 2-inch brass lined rule; 6-inch metal through handle awl; 6-inch depth gage; 6-inch pair of inside-outside calipers; 6-inch pair of dividers; 1¼-inch stencil brush; 4-inch set of Roman stencils; 100-foot ¼-inch heavy engineers strapping line in 10ths and 100ths of feet; 50-foot ½-inch gauge line in 8ths, 12 inches to foot; 12-inch trammel or dividers (marking butt straps on eighties;) small paint can; lumber-

Tank numbers assigned steel tanks.



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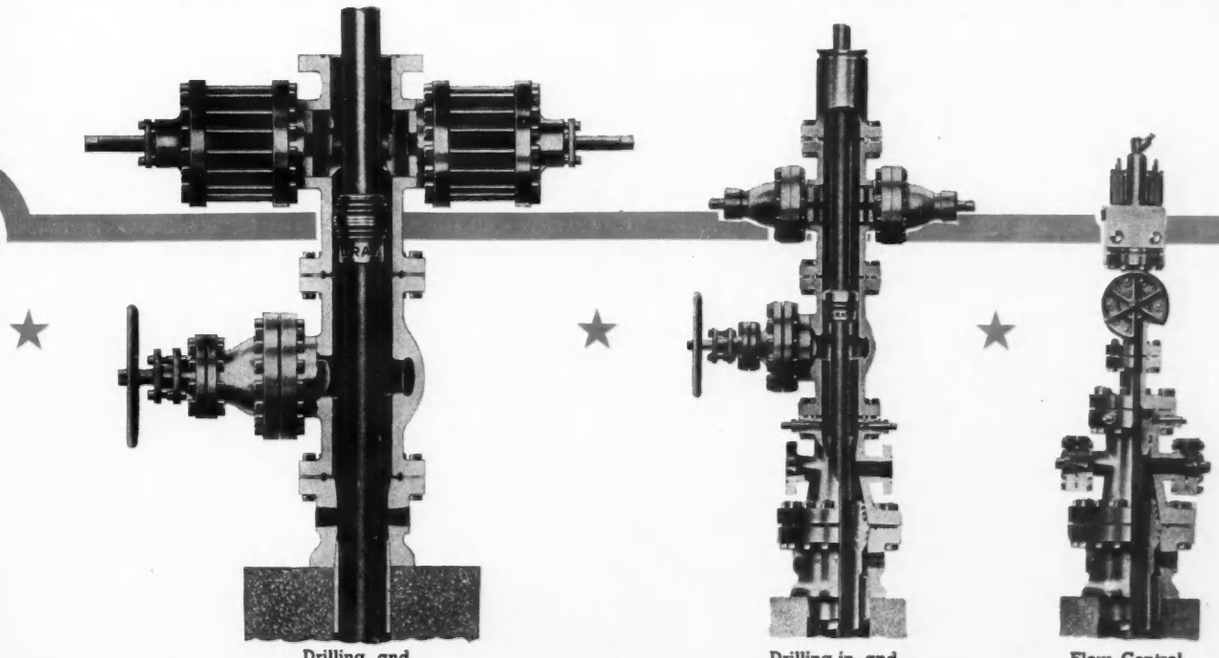

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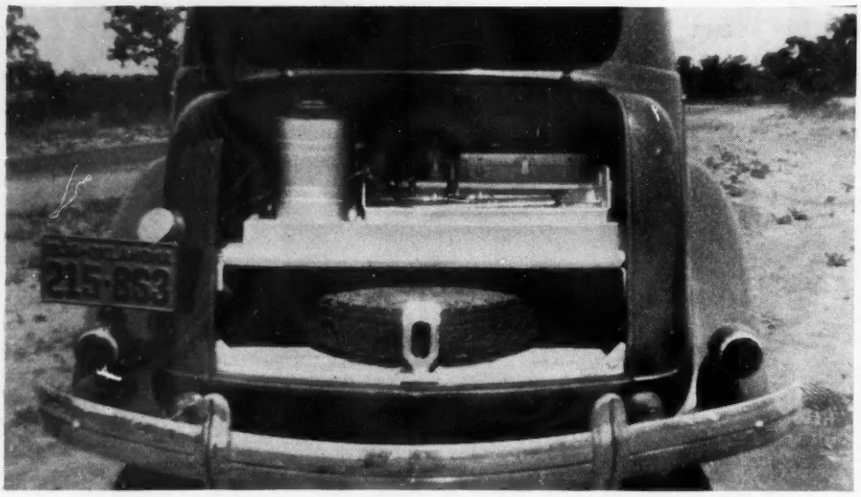


Field gaugers' equipment installed in trunk of sedan.

mans crayon and lumbermans crayon holder.

Circumference Height Marker

The circumference marker (Figure 20), may be used to mark the four or more points on bolted type field tanks in one operation. It also enables the strapper to place the line in position at the higher points of circumference.

Sectional Ladder

The "window cleaners" ladder is especially adapted for tank strappers as it comes in three 6-foot sections and is of light construction, yet sufficiently rugged for field use.

Ladder Rack

The ladder rack (Figure 21) should be fastened to the bumper of the strappers car and the ladder carried thereon. The carrying the ladder in single 6-foot lengths meets the highway regulations and is also a protection to the car and equipment.

Master Equipment

Each chief gauger is furnished a complete set of "Master Equipment" certified by the National Bureau of Standards, which is used at regular intervals to check each field gauger's standard equipment. The "Master Equipment" should be returned to the bureau every five years or less if thought necessary for a re-check in order to maintain the highest degree of accuracy and comply with A.P.I. requirements. The "Master Equipment" is listed as follows:

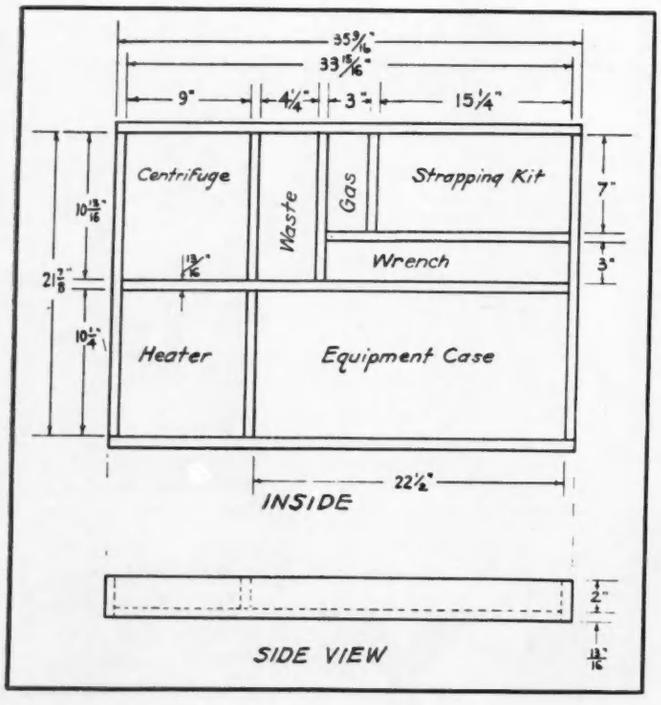
1—50′ gauge line.
1—0 to 180° cup case thermometer 1° graduations.
1—18 to 33° hydrometer - thermometer 0 to 150°.
1—33 to 48° hydrometer - thermometer 0 to 150°.
1—48 to 63° hydrometer - thermometer 0 to 150°.
1—63 to 78° hydrometer - thermometer 0 to 150°.
1—0 to 220° Sample & bath thermometer 2° graduations.
1—100′ ¼" extra heavy strapping line 10ths and 100ths.

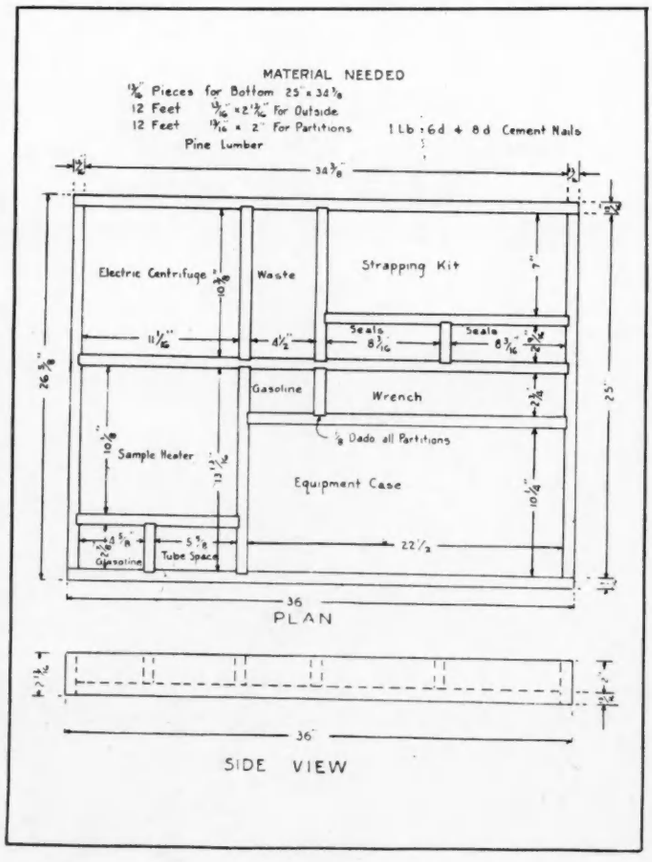
Report as to accuracy on the following equipment which is not used unless it comes within the "Limit of Error" specified by the American Petroleum Institute or the American Society for Testing Materials.

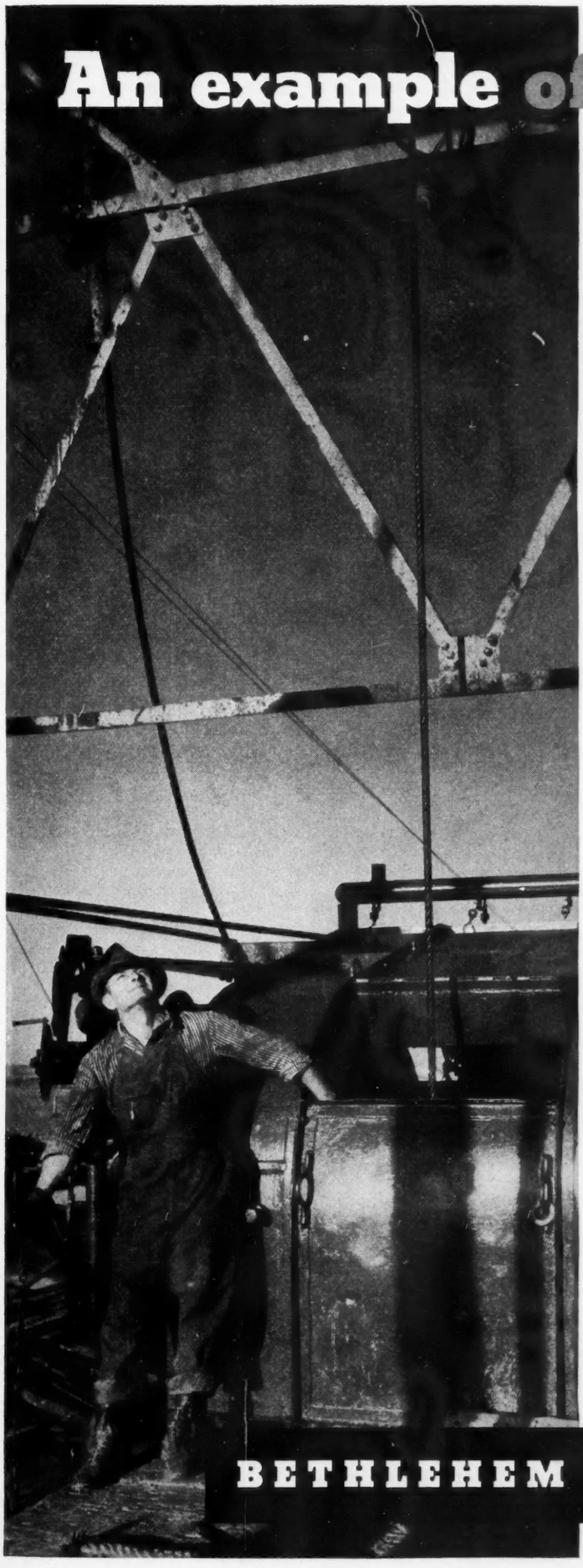
4—12.50 ml 100% A.P.I. centrifuge tubes.

FIGURE 19-B
Equipment rack.

FIGURE 19-A
Equipment rack for back opening trunks on sedans and coaches.







An example of Bethlehem's *know how*

Uni-Zact core in rotary lines

YOU have seen rotary lines go to pieces at the crossover, as a result of crushing of the strands and ultimate breaking of the individual outside wires. Here is the reason: Regardless of strength and quality of steel, life is often limited by the manner in which the core supports the strands.

The introduction of the Uni-Zact core has to a great extent removed this cause of rope failure. The Uni-Zact core, an exclusive Bethlehem feature, is composed of manufactured parchment strips instead of hemp. Impregnated and twisted into a firm, smooth base, this core gives a more solid, more uniform foundation for the rope than can be obtained from non-uniform, grown fibers. Further, the Uni-Zact core, being made of a tougher waterproof, rotproof material—with flat surface bearing on flat surface—does not wear or disintegrate from flexing and running of the line as do sharp-edged natural fibers.

Bethlehem's "know how," the result of half a century of experience in wire rope manufacture, brings you this improvement. It also brings you other improvements that lengthen rope life. For example, the core in this rope, as contrasted to Cable Drilling Lines, is oversize—meaning additional support to strands. Strands, core, and the entire rope are thoroughly lubricated. And when Form-Set, Bethlehem preformed line, is used, another cause of shortened life is overcome because outside wires, when broken, lie flat and in place. They do not bend back and cut into the strands.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

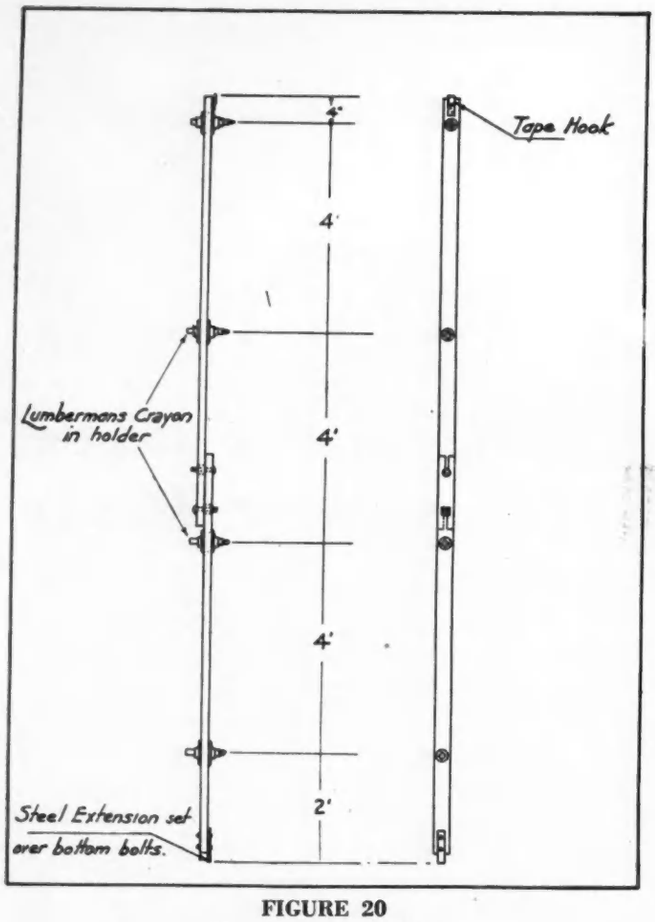


FIGURE 20
Circumference marker.

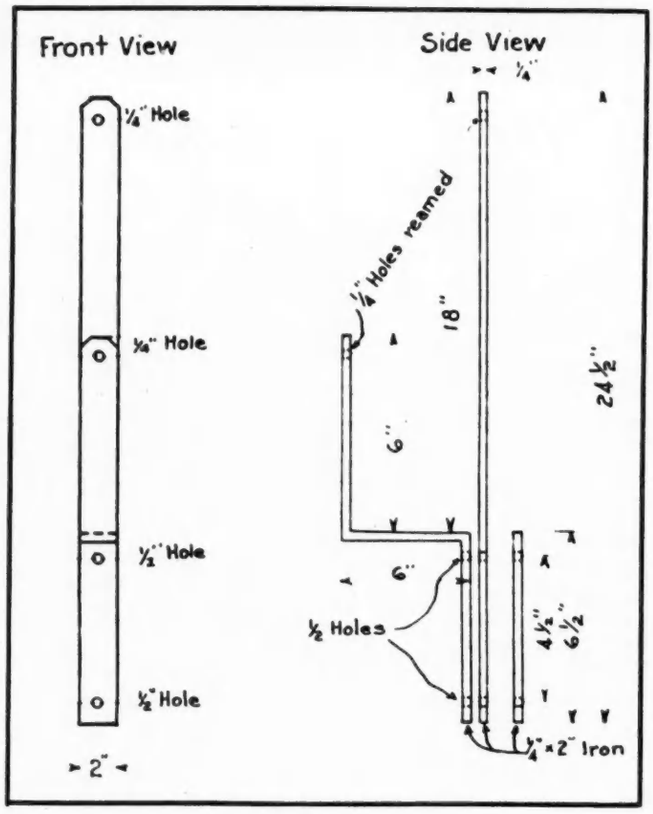


FIGURE 21
Ladder rack.

4—100 ml 100% A.S.T.M. centrifuge tubes.

The following equipment is not certified but necessary to carry for checking purposes.

1—Battery hydrometer (for checking battery in gaugers car).

1—clutch type speed indicator (check speed elec. centrifuge machine).

1—flexible rule (for checking pipe line connection)

1—2"x4" test by sight glass (crystal white—rounded edges, for checking percentage of oil and determining the b.s.&w. line).

The equipment as used to make the Standard Method of Inspection of crude oil in the field may be checked at any time for accuracy by the chief gauger of that division with "Master Equipment."

All equipment must be thoroughly cleaned after each inspection so that the results of the next inspection will truly represent the sample tested.

Should the question arise as to the accuracy of the Standard Method of Measuring, Sampling and Testing Crude Oil which complies with the American Petroleum Code No. 25, the tests may be checked with Master Gauging Equipment to prove the Standard Method is as accurate and correct as can be made field tests.

Equipment for a positive or referee check of standard equipment:

1—44' ½" gauge line with No. 590-A bob. (Certified by National Bureau of Standards.)

1—Tube gago paste.

1—0 to 180° precision temicator. (Thermometer with bulb enclosed in a base, equipped with valves for taking temperature at predetermined levels, tested and certified by National Bureau of Standards.)

1—Bomb. (Spot sampler.)

1—Bomb. (Running average sampler.)

1—Test can or composite sampler with sample cock.

1—Combn hydrometer - thermometer 18 to 33-33 to 48 or 48 to 63° in .1° graduation, thermometer 0 to 150°. (Certified by the National Bureau of Standards.)

4—12.50 ml 100% A.P.I. centrifuge tubes. (National Bureau of Standards report on accuracy.)

4—100 ml 100% A.S.T.M. centrifuge tubes. (National Bureau of Standards report on accuracy.) (Reports on tubes must be within "limit of error" of A.P.I. and the A.S.T.M.)

1—16" oil thief, complete with accessories.

1—Water indicating rod.

1—Tube gago water paste.

1—2"x4" test by sight glass.

1—1-quart gasoline dispenser with flexible spout. (Used for benzol or other cutting medium.)

1—Hot water heater (designed for both type of tubes).

1—0 to 220° sample and bath thermometer. (Certified by National Bureau of Standards.)

1—6-volt electric centrifuge machine (designed for either the 12.50 ml or the 100 ml centrifuge tubes or both).

1—Speed indicator. (Checking speed of centrifuge machine to see that it complies with A.S.T.M. specifications.)

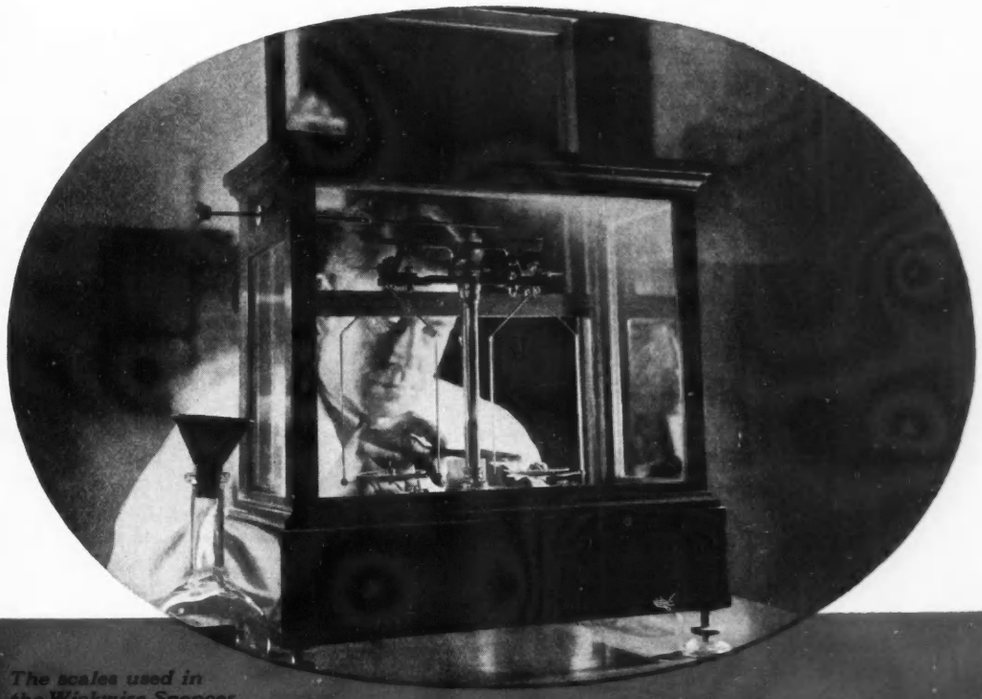
1—Equipment case for carrying the above equipment with the exception of the hot water heater and the electric centrifuge machine which is mounted in the rack of the gauger's car.

A high degree of perfection has been obtained in the design and the making of each article shown for the referee check, however, the results of the tests from same check with like tests, under like conditions, with the equipment used at present on the standard method of measuring, sampling and testing crude oil.

The inspection and testing of crude oil has progressed rapidly during the past 10 years, thanks to the American Petroleum Institute in its effort to promote uniform and accurate methods for measuring, sampling and testing crude oil in its Code No. 25.

Continual cooperation in the industry with the American Petroleum Institute will undoubtedly lead to greater improvements in the years to come.

SCALES that can weigh THUMB PRINTS



The scales used in the Wickwire Spencer testing laboratories are so sensitive that extreme care must be exercised to prevent finger prints from being deposited on the polished trays after loading.

ARE USED IN BUILDING WICKWIRE ROPE LIFE "BEYOND SPECIFICATIONS"

Absolute precision weighing of the chips bored from sample steel ingots is necessary to accurately determine the presence of various substances that govern the qualities of rope steel. Even a tiny heap, the size of that shown on the scales, of certain non-ferrous materials will change the whole characteristics of a reel of wire rope weighing several tons. So control them we must to build quality into Wickwire Spencer Wire Rope . . . beyond specifications.

It is still the privilege of the progressive manufacturer to build rope life into his product beyond official specifications.

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WICKWIRE ROPE

Motor Used

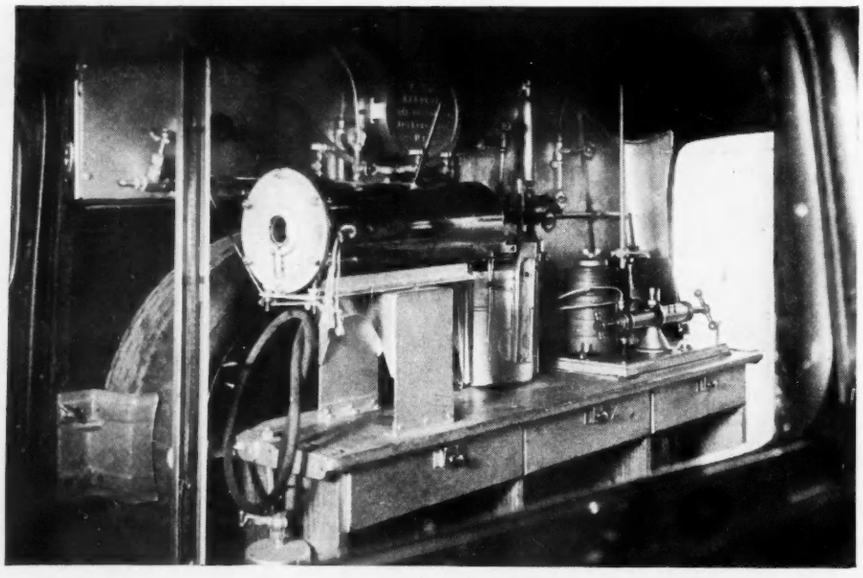
TO PULL VACUUM ON GRAVITY BALANCE THROUGH CONNECTION FROM BALANCE TO INTAKE MANIFOLD

By FRANK B. TAYLOR, Staff Writer

EFFECTIVE purging of the balance is a vital part of accuracy in testing of natural gas. When a general test car is used in the field, the customary pump is often dispensed with in favor of some other means of pulling a vacuum. One method is to attach the usual manual-operated pump to a driver, and the driver to a crank driven from the water pump shaft or from some other easily accessible power take-off. Some few men have used the method of vacuum pull from the car manifold.

The purge of the balance is through motor power, the pull coming from the output side of the carburetor-to-manifold connection. There is usually a take-off from this part to the windshield wiper, or to other vacuum-operated parts of the motor. An additional connection can be made at this regular tap, or another hole drilled and tapped somewhere between the carburetor and the cylinder head.

The line is carried from the manifold connection to the tap used for purging the balance. For the most part, copper or brass tubing is satisfactory and can be soldered to connections. As there will be some vibration carried up the line from the motor, and as change of speed and starting tend to sway the motor from level, it is often desirable to use a flexible rubbber or composition hose between the take-off and the cowling. This allows plenty of play. Valves may be used at the take-off or at the balance, although they are unnecessary.



The test bench of a gas-test car completely equipped for field determinations. This interior shows the gravity balance in the immediate foreground, supported on a steel frame, but subject to leveling by means of screw adjustments. On the near side of the balance cylinder can be seen the thermometer and well for correcting the temperature of the instrument. The 30-inch manometer is at the left. Above the balance, and attached to the second cock of the balance, is the tubing from the intake manifold of the motor. This remains connected at all times, whether the instrument is in use or not.

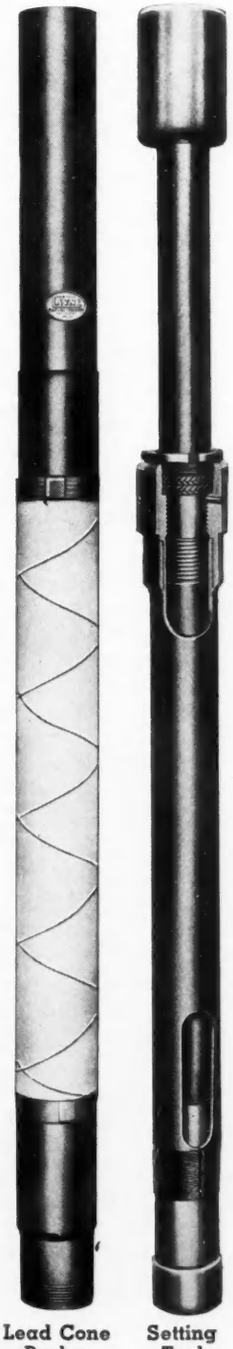
Other equipment in the car includes prover, bomb, recording pressure chart, dead weight, gasoline content apparatus, fitting, tools and spare parts.

The determination of the gravity of a gas is carried through in the usual manner, either the air or gas being run first, the balance exhausted and the second balance being obtained. As is the customary practice with a hand-operated pump, the balance is purged three or more times when changing from air to gas or vice versa. When making a change from air to air, the purge need not necessarily be as thorough. Gas to gas depends upon the variation in the gas constants, and these are only determinable after analysis, and not before.

With motor operating normally the vacuum pull of the intake may go close to 21 inches which is around 534 millimeters of mercury. As the customary pull generally obtained on a hand pump is about 600, it is desirable to evacuate the balance more often than when the hand pump is used. This is particularly true when a motor is in relatively poor condition, as decreased efficiency lowers the vacuum it is possible to pull. From 10 to 12 inches of pull is an indication of bad rings or other pressure loss. A change in altitude changes the maximum vacuum a motor can pull. From 13 to 20 inches is usual, this figure being convertible into millimeters of mercury through multiplying by the factor of 25.4.

In withdrawing gas from the balance and mixing it with the fuel drawn into the cylinders of the motor, there may be some slight change in the firing of the engine. The power might be noticably irregular during the operation, but as the volume is small compared with the volume taken into the cylinders, there is no danger of an explosion. A backfire of the motor would not spill mercury from the manometer as the petcock on the balance to manometer connection would be shut during excavation.

You Can't Hang a LAYNE SETTING TOOL



Lead Cone Packer — Setting Tool

Whether you do or don't believe in capital punishment is no business of ours. But when it comes to setting tools, everyone is against hanging and that's our business.

It's impossible for the Layne Setting Tool to hang-up. When you have made eleven turns to the right the setting string drops 25 inches, automatically releasing setting tool from packer.

This release is absolutely positive every time. The 25-inch drop forces the expanding bushing out from under the threads, allows them to contract and disengage from packer. It's the drop — not rotation — that releases setting tool from packer.

LAYNE & BOWLER COMPANY

HOUSTON, TEXAS

EXPORT OFFICE: Room 1636, 30 Rockefeller Plaza, New York, New York

How Much Crude Reserve Has U. S. S. R?

By L. DAVID WOSK, Petroleum Engineer

PART 3

VIII. Binagady

Binagady is one of the oldest pools of Russia's Absheron Peninsula area, probably dating back to the 1870's. It is an area of intense folding and faulting, with the crest of the anticline deeply eroded. The Productive horizons are sealed by tar at their outcrop; specific gravity of oil produced is very low. The Subkirmaku beds produce in this pool, leading to the popular belief that where they can be located along this line of folding, they will undoubtedly produce. The area of this pool has been extended greatly in recent years, although production of from 200 to 400 tons monthly of low grade oil has discouraged large expenditures in development. Total production to January, 1936, was 7.9 million tons.

IX. Balakhany-Ramany-Sabunchy (Lenin Oil Fields)

This is a continuous area of production on the same line of folding as Sulu Tepe and Binagady. Midway in the field, the axis of the fold turns sharply southward, making the field crescent shaped. The field is located approximately 8 kilometers northeast of Baku, and has been producing since 1873, when one of the drilled wells struck oil at 30 meters and produced several thousand tons. Until 1912, only the upper divisions of the Productive formations were exploited. Development of intensive exploitation of this field commenced in 1924 and 1925. Area of the pool is approximately 4000 acres, with additional acreage being added. The Productive formation outcrops on the surface and is eroded to varying depths along the anticline. It is interesting to note that while the Surakhany, Sabunchy, and Balakhany beds are productive, the middle division is water bearing. The argillaceous Overkirmaku beds are of very little importance, whereas the sandy Overkirmaku and the Kirmaku proper beds are very important. In these lower horizons there are six oil strata which are far more important that the upper strata which outcrop on the surface and which are sealed by tar. The Subkirmaku is productive in the upper part, but is water bearing in the lower, in the main part of the pool. Edgewater is common in most sands. There has been about one meter subsidence noted in this pool through (1) extraction of sand, and (2) folding still continuing.

The specific gravity of oils from this pool varies from .857 to .941.

The line of folding is shattered by a complex system of faults. This, together with the inefficient operation of this pool in bygone years, has resulted in most of the oil horizons of the upper division of the Productive series being entirely water flooded. There is an attempt being made by the present Soviet operators to prevent this in the lower horizons.

The main present development is being carried on in the region of the village of Ramany on the eastern extension of the pool. Here, the highly productive Subkirmaku is being developed. In addition, on the southern limb of the structure in the western part of the pool, additional areas of the Subkirmaku are being added, though here this production is relatively small. The possibilities of extension of this pool to the east and also to the southwest in the Subkirmaku are considered good. There are, of course, also possibilities that this entire line of folding may produce in the formations below the Productive from the Pontian through the Cretaceous. This has yet to be proven, but if production is found in the lower horizons, Soviet reserves will be increased greatly. The search is now being conducted.

In the past 60 years, total production from this field has been approximately 220,000,000 tons. Current daily production is approximately 12,000 tons.

Poorly Operated

The field, in general, has the appearance of a very poorly operated one. The mixture of old derricks, together with the new large wooden derricks, the single locations

MUCH has been written about U. S. S. R. crude reserves. Conclusions have revealed a broad divergence of opinion.

In this series of articles, the first part of which appeared in The OIL WEEKLY of February 21, 1938, the author, L. David Wosk, a petroleum engineer of San Diego, California, gathered his data on fields *in the fields themselves.*

AIR BALANCE YOUR PUMPING WELL AND . . . . REDUCE YOUR "DOWN TIME"

WITH A

REED AIR BALANCED PUMPING UNIT

COMPACT
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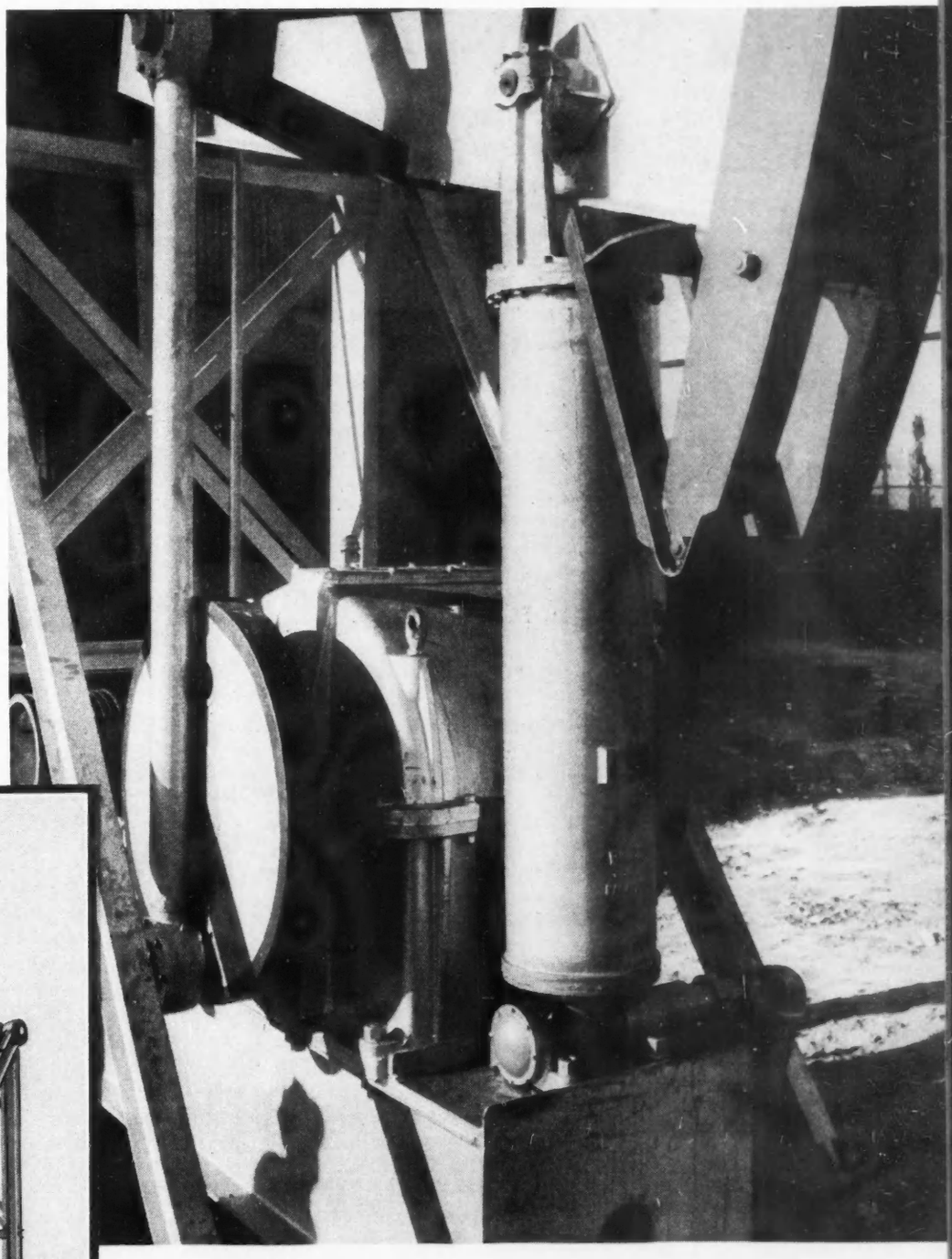

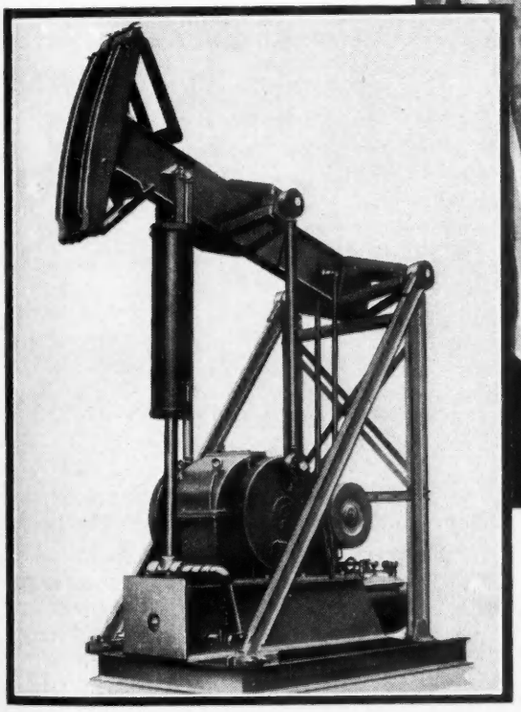

The cushioning effect of compressed air as a counterbalance — with its flexibility and greater ease of handling — cuts "down time" and rod parting to a minimum.

ALL HEAVY COUNTERWEIGHTS — WITH THEIR ACCOMPANYING VIBRATION AND SHOCK STRESSES ARE ELIMINATED.

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containing as many as 5 or 6 wells drilled to different depths, presents a maze of development, seemingly without plan. Very little attempt has been made to keep the field clean. The rush for production, without regard for cleanliness, efficiency or ultimate recovery, is apparent. It is, therefore, virtually impossible to operate this field with any degree of efficiency. Had it not been for electrical pumping and the low gravity of oil, undoubtedly many a catastrophic fire would have developed in this pool. Signs of inefficiency abound. The task of cleaning up this pool and increasing the efficiency of operations, of modernizing production methods, which obviously are antiquated here, has been recognized. Placing the petroleum industry under the new Commissar of Heavy Industry, L. M. Kaganovich (the trouble shooter of the Soviets) will undoubtedly, in a relatively short time, tend to correct this situation. There were some evidences that this deplorable condition, existing in a measure in all of the Aspheron oil fields, has been recognized for some little time and that some steps have been taken to correct it. Much more is necessary.

X. Surakhany Oil Field

Surakhany pool lies south of the Sabunchy, on the same line of folding. The type of structure is similar in most respects, the anticline being fractured and asymmetrical. The western limb dips from 4 to 12 degrees, the eastern from 7 to 24 degrees. The eastward displacement of the crest of the anticline is more than 700 meters in the lower horizons. The faulting in this pool is across the strike, whereas that of Bolokhany is with the strike. Displacement of these faults on the upper horizons is from 50 to 60 meters. The faults disappear with depth and very few persist into the lower Productive formations. There are eight producing beds in the Surakhany, and in general, these beds are approximately twice the thickness of those in the Bolokhany field. Rapid changes in the character and thickness of the producing formations of the Apsheron Peninsula are very common. Saturation in this pool is very high. Achaghylian and Apsheronian beds once contained oil and considerable gas. This, however, has been entirely depleted. It is possible that this may be accounted for through seepages from lower horizons. In general, the section of the Sabunchy, Surakhany and the beds through the Middle Division are similar to those of the other pools in this area, except for their greater thickness. In the lower division, the Overkirmaku argillaceous and sandy beds increase greatly in thickness and are oil bearing. The Kirmaku and Subkirmaku contain 10 producing horizons.

The producing area is relatively small, approximately 1500 acres. A feature in this pool, also noted in other pools of the area, is that the oil-water contours gradually increase downward to the fifth horizon, then they are successively lessened to the ninth horizon. In the lower division, they again increase, but at their maximum, remain smaller than the fifth. In this pool, the Kirmaku and the Subkirmaku are not productive on the western limb of the fold, nor on the crest, the production being confined to the eastern limb. This eastern limb does not appear to be underlaid by water, and the oil saturation, while extending far down the limb, does not appear to extend to the trough of the fold. This peculiar condition, characteristic only in this pool, is known as a "hanging deposit."

Specific gravity of oil increases with depth as does that in adjacent pools. At the top of the Productive formation, which is not eroded deeply in this pool, almost colorless oil, with a specific gravity of .776, was encountered. The Surakhany beds (now virtually exhausted, yielded a reddish oil with a gravity ranging from .810 to .820. The lower division of the productive formations yields oil of .900 gravity. The total production, to date, has been approximately 8.5 million tons.

Additional possibilities of this pool consist in extensions on the east limb in the Kirmaku and Subkirmaku and, of course, to possibly deeper horizons. In this connection, because of the fact that most of the Productive formation is present, this field contains the deepest wells of the area, ranging to 2200 meters (6700 feet). This is a relatively shallow depth and one which would easily permit deeper development.

In this area oil has been known for many centuries, the oil and gas seeps having been used by the fire worshippers of yore. Commercial production, however, began in approximately 1910, although the possibilities were known for a few years prior to this date.

XI. Kara Chkhur Oil Field

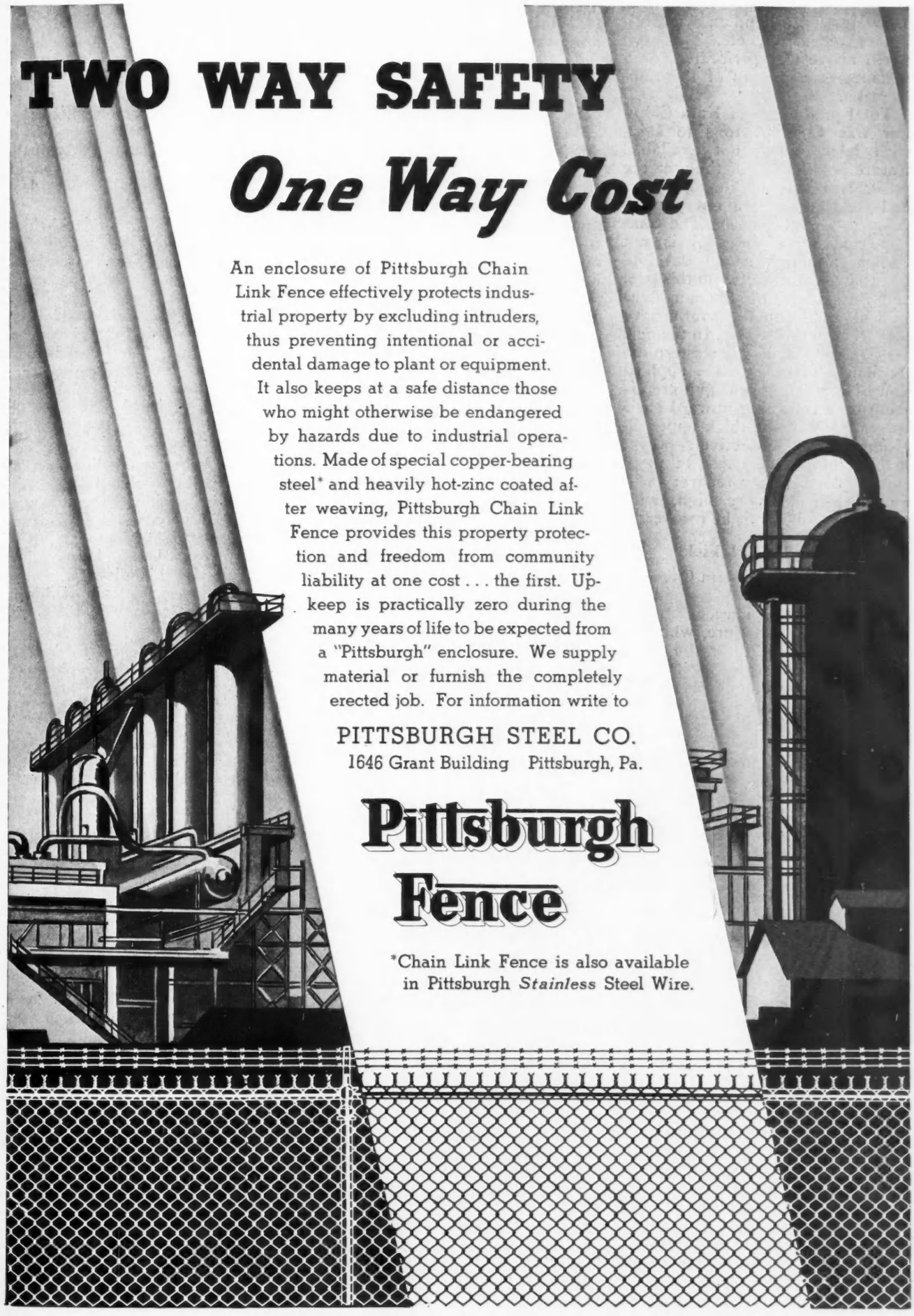
This pool lies directly south of the Surakhany field on the same line of folding. The structure is similar in character, being a relatively flat anticline, highly faulted. It is smaller in size than Surakhany. As in the Surakhany pool, the upper division of the Productive formation continues to thicken. The Surakhany beds that are normally 300 to 400 meters in thickness are here 500 meters thick. Middle and lower divisions are similar to those in the Surakhany pool in thickness. The entire Productive section is present in Kara Chkuhur. The asymmetrical character of the fold, together with the complex faulted pattern (disappearing with depth) has made development tricky, because of its influence on the distribution of oil and gas. Contrary to the Surakhany pool, here the eastern limb of the fold is not important, whereas the western limb is the important one. Many of the horizons that produce at Surakhany are dry at Kara Chkuhur. Many of the wells of the upper and middle division of the Productive formation have had initial productions up to 1000 tons per day. These, however, rapidly went to water. In the latter part of 1934, (pool discovered in 1928, with an initial of 400 to 600 tons per day at depth of 860 meters) the lower division of the Productive formation was brought in, proving up the Kirmaku and the Subkirmaku.

In one well visited by the author the production was 500 tons per day on a 15 milimeter choke from the Subkirmaku; total depth, 2165 meters. There was 75 atmospheres of pressure on the casing (between the 6 and 8 inch) and 35 atmospheres on the 3-inch flow string set at 2100 meters. Very little sand was being produced with the oil and eight such wells have been completed). Thickness of the Subkirmaku in this well was 75 meters and the wells took in a full section. Casing was set on bottom, cemented up a great distance and then gun-perforated with an electrical gun.

Gun-perforation and completion of wells from the bottom up is now regular practice on the new developments, indicating better completion and production technique, bet-

TWO WAY SAFETY

One Way Cost



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ter water control and an eye to ultimate recoveries, etc. The well noted above was perforated for a distance of 6 meters of the Subkirmaku.

Total production of Kara Chkuhur was 5,000,000 tons to 1932, with later figures not available. Future possibilities of the area are good. Horizons of the Kirmaku and Subkirmaku are not yet developed, though proven. The complete extent of the pool is not known, although recent development of the areas between this pool and Surakhany, on the north, as well as Zykh, on the south, have proven both productive. In the new areas, as well as in the western extensions of the pool, the application of cementing and gun-perforating on a returning upward basis leaves many of the thick upper divisions of the Productive zone yet to be exploited. Because of these factors, the ultimate recovery will undoubtedly be very high, with most of the oil yet to be recovered.

XII. Zykh Oil Field

Zykh lies south of Kara Chkuhur on the same line of folding and extends into the Caspian Sea. On the surface of this structure, which is similar to Kara Chkuhur, the upper Apsheronian limestone is present, as well as the middle Apsheronian. In the center of the pool is a mud volcano whose breccia contains oil saturated sandstones of the Productive formation, first drawing attention to this area 50 years ago. Five wells drilled at different times had unfavorable results. Active, deep development began in 1934. Prior to this time, 10 additional wells had been drilled since 1930 into the upper section of the Productive formation without yielding favorable results. The upper horizon, namely the Surakhany and Subanchy, as well as the beds of the Balakhany that produce in Kara Chkuhur, are barren in Zykh. Present production comes from horizons 8 and 9 of the Kirmaku, in an area well off the crest of the structure. This may be due to an asymmetrical condition greater than heretofore found in other pools. The initial well came in unexpectedly with a flow of 1500 tons per day. Bottom hole water soon appeared, and after the well was brought under control, this horizon was cemented off, indicating improved technique in recent times.

There are approximately 20 wells drilling. The distribution of oil on Zykh structure is very spotted, making it very difficult to prognosticate the future possibilities, although it is possible that the area and production may be extensive. Two wells producing to May, 1936, had yielded 24,000 tons. Subsequent production is not available, although additional producing wells have been completed.

South of Zykh, a short distance, one can observe Peschany Island upon which dips have been taken that indicate either an extension of Zykh or a new pool. This area is now being tested, and the author feels that production may be encountered.

Persistance of the Russians in developing production from a complicated and seemingly unpromising structure such as Zykh, and at the same time, the increase in their technical ability in these newer areas, leads the author to believe that both their geology and technique are rapidly coming up to efficient standards. This is especially true of their geological branches, in wildcat areas and also in conjunction with the development of their proven pools, as exemplified by electrical coring, water and oil analysis, thorough sampling, etc.

XIII. Kala Oil Field

Kala is located on a structural line east of, and also independent of, the field just discussed. Prospecting first began in 1904 and the area was first noticed by gas seepages in a lake nearby. Work was disrupted and discontinued by the war. In 1924, additional work resumed to open this pool continued until 1932 without successful results. First production was obtained in October, 1932, when well No. 20 commenced flowing light oil at the rate of 700 tons a day from the Surakhany horizon. In January, 1933, the second well, producing from a different horizon of the Surakhany, made 1500 tons per day, definitely proving the value of this pool.

Kala structure is a large, relatively flat brachianticlinal fold 10 kilometers long and 4 kilometers wide. The dips range from 4 to 6 degrees. The surface formations are from Apsheronian to the Surakhany. It is notable that the dip increases with depth. There are 8 surface faults, all of which disappear within the limits of the upper and middle productive formations. In general, the Surakhany beds, while variable in thickness and increasing from 440 to 700 meters in a southeasterly direction on the limb of this fold, are similar to the same beds of the Surakhany and Kara Chkuhur oil fields. The Sabunchy and Balakhany beds are the same as at the Surakhany field. The Overkirmaku, as well as the Kirmaku and Subkirmaku, are similar to those of the Surakhany field. The fold is asymmetrical, with considerable deep shifting.

The Apsheronian and Akchaghylian beds, as well as all the divisions of the Surakhany beds, are gas bearing, where as many of the Surakhany are both oil and gas bearing. The Balakhany beds, as well as the middle division, are water bearing. The Overkirmaku argillaceous and sandy beds, as well as the recently discovered Kirmaku and Subkirmaku, produce oil.

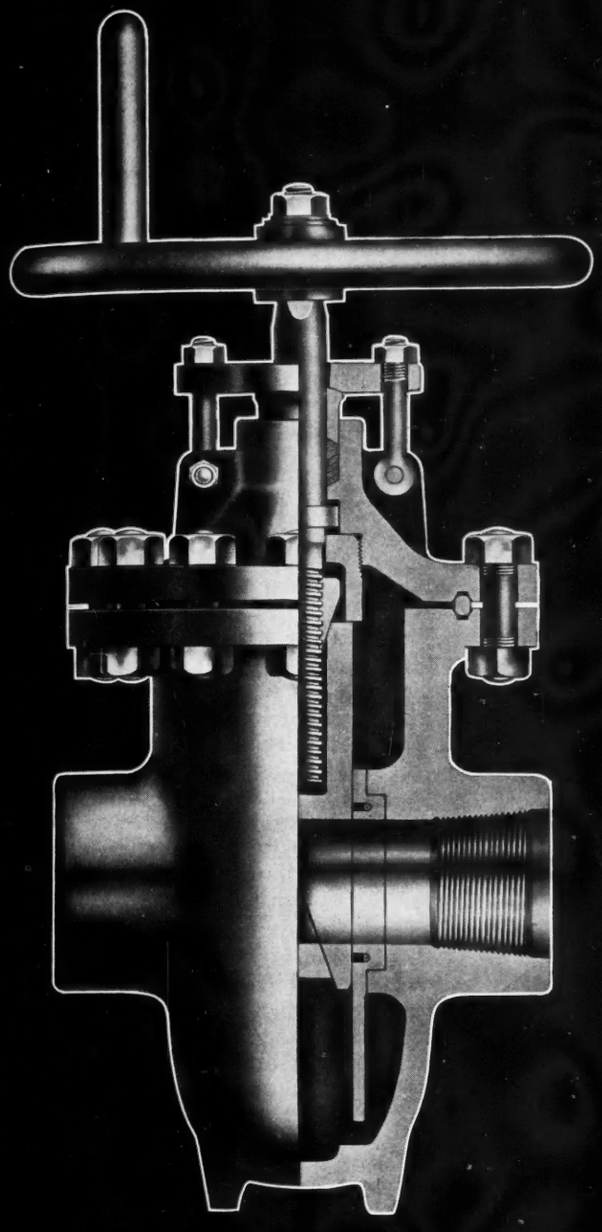
Oils of Kala range from .824 in the Surakhany to .878 in the Subkirmaku, being much lighter than those of other fields in this district. The benzine content ranges up to 9.25 percent, and paraffine content up to 1.93 percent, all of these factors being better than other oils in this district.

Production of the Kala field from discovery to January 1, 1936, was 8 million tons of oil.

In a hurried attempt to develop Kala oil to meet the rapidly increasing demand, little attention was paid to well spacing or to adequate engineering technique, such as developing from the "bottom up." The result has been a pool crowded, dirty, many wells per location, wells producing beyond their efficient rate, etc. This condition is being corrected in the newer portions of the pool. While the present productive area is estimated at approximately 3000 acres, the pool is not defined. Future possibilities from the standpoint of increasing the area, as well as the commercial exploitation of horizons which have not been drilled, (Subkirmaku, Kirmaku and Overkirmaku), are very great. In all probability, this pool will rank in importance with the greatest in the Apsheron Peninsula. Of additional importance, is the fact that Kala is the only pool to date on this line of folding. Intensive exploration is being conducted to open additional production on this line. The lower dips may account for failure to find it so far, as the Russians are accustomed to looking for steep dip pools.

XIV. Artem Island

East of the Kala line of folding, beyond the tip of the Apsheron



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Peninsula, there are several islands of varying size. One of the largest and most important is Artem Island, upon which considerable production is found, also in the productive beds. The upper part of the productive formation is completely eroded on this structure, consequently having no commercial possibilities. The Overkirmaku argillaceous beds are 70 to 80 meters thick, being much thicker than in other areas. The Overkirmaku sandy layers are approximately 40 meters thick, the Kirmaku being 255 to 260 meters thick and the Subkirmaku not more than 60 meters thick. The fold is steep, faulted and sharply asymmetrical. The fold can be divided into 2 sub folds: the northern one containing oil in 7 horizons of the Kirmaku and Subkirmaku, the latter being of the greatest commercial importance; and the southern fold, where only the Subkirmaku is of commercial value.

Development of the northern fold began in 1904, although it was not until 1930 that the Subkirmaku exploitation commenced, the upper horizons having been abandoned. The southern fold development began in 1932 from the overthrust zone of one of the faults, with an initial production of 200 tons per day. In 1936, development of that portion of the structure lying in the sea to the north was commenced. The first two wells, approximately 700 meters off shore, flowed 250 tons per day each from the Subkirmaku. Production has been obtained as far as 1½ kilometers from shore, with the limits not yet defined. Exploitation of the sub-marine structure of the south fold has not yet commenced, although this is due to start soon. It is contemplated that production will be prolific because of the overthrust on the south end. Wells have penetrated the same horizon three times, giving a great thickness of saturated sand.

On Artem Island, directional drilling is being carried out to develop the sub-marine beds. This is a relative innovation for the Russians and indicates their desire, as well as increasing ability, to use modern methods and equipment.

Production of Artem Island fields to January, 1936, is 4.9 million tons. The oils are heavy, ranging from .913 to .940 gravity. The wells are relatively small, ranging from 800 to 1000 tons per well per month. Possibilities of Artem are considered great because of the known, but not yet developed, Subkirmaku beds as well as to the undefined and undeveloped areas under the sea.

Attention must be called to the numerous islands lying south and east of Artem which are believed to be indications of additional structures, on possibly another line of folding. There is some evidence to support this. If so, great reserves and production can be expected from these places. Immediate development is not called for here, however.

Mardakiany

To the north and west of Artem Island is the structure of Mardakiany, 35 kilometers from Baku and two or three kilometers from the seashore. Evidences of this structure can be seen in the arched reefs in the shallow water along the shore. The shore line itself forms an arch, and the dipping horizons and other factors indicate a very large structure. These various indications resulted in an investigation in 1935. Sub-marine core drilling was conducted in the relatively shallow waters (16 meters deep, 4 kilometers from shore). Sixty krelius wells were drilled in 10 lines across this structure. It was found that a structure existed in a northwest southeast direction, 9 kilometers long and 4½ kilometers wide. Subsequent geophysical work has borne this out. It was found that the Productive horizon is eroded to the middle and that a mud volcano exists on the north end of the structure. This structure is asymmetrical, diapir type with dips varying from 9 to 47 degrees, faulted and complex. The core drill holes showed presence of oil and gas.

The author calls special attention to the extensive geological work carried out in this area under difficult conditions and again the adaptability, in recent times, to modern drilling technique. While the Russians have not yet caught up with the advanced methods of drilling from barges as done on the Texas Gulf Coast, they are studying this and in time, will undoubtedly adopt this technique.

Oil field equipment of Soviet make is increasing and they plan in time to use their own equipment exclusively. Light, portable equipment is being constructed. Baku has several plants manufacturing equipment, and while it is not up to American standards as yet, far surpasses Russian equipment of bygone days.

XV. Bibi-Eibat (Stalin Oil Feld)

The most productive field (on a per acre basis) in the world is the famous Bibi-Eibat pool. It is the most famous and important of the pools of the Apsheron Peninsula and the most intensively studied. The pool is located 3 kilometers southwest of the city of Baku, partly on land and partly on the filled portion of the former Bibi-Eibat Bay, now called Ilvitch Bay, after Lenin. There is a difference of opinion as to which line of folding this pool may be on, and some contend that it is on an independent line. Surrounding the field on three sides are the high cliffs of Apsheronian limestone, a portion of the Productive series being eroded on the crest of the structure. The fold, 6 kilometers long and 3½ kilometers wide, is a short brachianticline elongated in a northwesterly direction, faulted and somewhat asymetrical, flanking a buried mud volcano. The faults, some of which are overthrusts, are transverse to the axial line and gradually disappear with depth. There are 7 main faults with from 10 to 150 meters throw.

Production is from the Productive series which has been penetrated to 1800 meters. Sixty-five percent of this section is sand, most of which is saturated. Russian geologists estimate the phenomenal recovery of 60 to 75 percent. The area of the pool is 400 hectares. The deepest well in the pool, on the north flank (opening a new horizon, the eighteenth) is 1970 meters.

Development commenced in 1875 and 4 horizons were opened in 1890. From 1930 to 1934, 11 more horizons were opened (from 1924 to 1929, the Bibi-Eibat Bay was filled and this area developed). By the end of 1934, horizons 16 and 17 were developed in small isolated areas of the pool. Recently, however, horizon 17, one of the most prolific discovered to date, has been greatly extended into the old part of the pool, and horizon No. 18 opened. Four wells have been drilled through the Productive series, of which 1850 meters is found on the crest. The most important productive horizons are Nos. 5, 14, 15, 17 and 18.

The characteristic of the area, the lower horizon being of smaller areal extent than the upper, does not entirely apply to this pool. The horizons increase in area to the fifth, then decrease to the fifteenth. Horizons 14, 15, though small in

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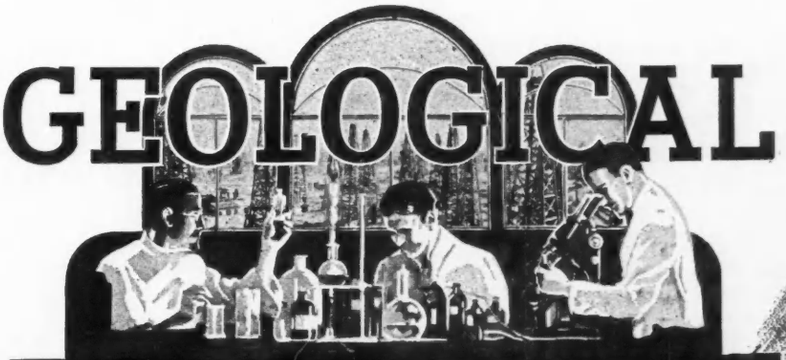

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area, are very thick, a compensating factor. The sixteenth, seventeenth and eighteenth again increase, the two latter being greater than the fifth. The seventeenth horizon correlates with the sandy Overkirmaku and the eighteenth horizon with the Subkirmaku. This 18th horizon, although determined to be greater in areal extent than any of the others, has not yet been completely defined. The fifth horizon, which has produced approximately 14,000,000 tons, is the most prolific so far. The total output of oil from this pool to January 1, 1936, was 74.5 million tons.

The oils increase in gravity with depth, ranging from .840 to .907. The waters decrease in salinity with depth and from observations, the author notes that very little is being produced.

Field Results

There have been over 2600 wells drilled to date, of which approximately 1200 are producing, 800 being shut down for repairs. Over 600 wells have been plugged due to low output or faulty operations in the past. Wells are spaced 100 to 125 meters apart for each sand. Due to the numerous horizons and many wells per location, the field looks like a forest of derricks. Many of the shut-down wells are being equipped with deep pumping devices. All pumping in the pool is electrified. The monthly production from the 1200 wells is approximately 3.5 million tons (about 10,000 tons per day).

Initial productions from the seventeenth horizon that is now being developed range from 70 to 300 tons per day. The period of flow averages from 3 to 5 months. Wells are then agitated or put on air lift. The oldest well in No. 17 horizon is over 3 years old and has not yet been put on the pump—still producing on air lift. The air lift wells produce on 5/8 to 3/4-inch chokes, at 30 to 40 atmospheres back pressure. Only one well in this horizon is making water.

Initial production in the eighteenth horizon is 700 to 800 tons per day, with a greater pressure than in the seventeenth. A gas cap is found in horizons 17 and 18. No gas is being returned to the sand, although material is on hand and the construction of a gasoline plant in this area is to begin soon. The gas runs approximately one gallon per 1000 cubic feet. The dry gas will be used to repressure in part Bibi-Eibat and Surakhany area. In addition to this, a stabilizing plant is being built to handle approximately 35,000 barrels of crude daily.

No Secondary Recovery

No secondary recovery methods have been applied to Bibi-Eibat. No studies of gas/oil ratios have been made, although it is admitted that these were high in the early stages of development and have been reduced lately. There is no standardized lifting method used. Wells are electrically pumped, using individual jacks generally, although some central units are used. To date, wells in this area have never been shot because of the soft sands. Hot gas and electrical coils have been used to clean paraffin from tubes. Bottom hole pressure experiments are just being introduced.

Although this pool is 70 years old, it is far from exhausted. In fact, its entire areal extent has not yet been determined. With horizon No. 17 only partially developed and No. 18 merely scratched; with the former bay area not completely developed in the upper sands and its extent undetermined in the lower sands, the potential production from this pool is great. In addition to this, the entire Subkirmaku has not yet been penetrated and there may be additional horizons below No. 18 in the untested portions of the pool. These areas, if found, will be small. There are, at present, 30 rotary rigs running, making about 33 meters each per day average.

Production and wells drilled in the Bibi-Eibat pool are as follows:

Year	Production	Wells Drilled
1871	80	
1872	160	
1873	820	
1874	2,600	
1875	2,900	
1876	3,400	
1877	5,200	
1878	13,100	
1879	21,300	
1880	21,300	
1881	24,600	
1882	29,500	
1883	50,800	
1884	80,300	
1885	103,200	
1886	127,800	
1887	188,400	
1888	267,000	
1889	309,500	
1890	311,200	
1891	411,200	
1892	571,700	
1893	815,700	
1894	581,600	
1895	812,500	
1896	1,200,700	
1897	1,023,800	
1898	1,580,700	
1899	1,323,500	
1900	1,989,900	52
1901	2,190,500	51
1902	2,088,000	30
1903	2,508,200	58
1904	2,508,200	97
1905	2,073,000	56
1906	2,091,500	65
1907	2,150,900	86
1908	1,960,500	91
1909	2,015,000	80
1910	1,947,700	70
1911	1,682,500	52
1912	1,667,100	47
1913	1,538,500	39
1914	1,184,300	36
1915	1,297,300	29
1916	1,467,700	48
1917	1,000,800	28
1918	525,200	8
1919	614,300	6
1920	493,100	5
1921	438,500	3
1922	496,300	4
1923	588,500	21
1924	650,300	31
1925	938,500	52
1926	1,229,300	90
1927	1,439,100	80
1928	1,451,590	108
1929	1,814,893	136
1930	2,790,491	160
1931	3,656,700	146
1932	3,072,336	149
1933	3,724,400	134
1934	3,684,700	120
1935	3,390,276	106
1936	3,498,140	136
	78,274,386 (tons)	2590
Old Area	57,587,132	1455
Gulf Area	20,678,254	1135

There are 5 geologists under the direction of the Stalineft (the trust in charge of Bibi-Eibat) working exclusively on this pool.

Engineers Lagging

The field office maintained in this pool for the study of conditions is well equipped and the work displayed to the author seems to be very complete. Every conceivable type of study that would have any influence on the location or accumulation of oil in this pool has been made. Water and oil analysis, core drill records, structure contour maps on each horizon, oil-water contact maps, production records, etc., are carefully kept up.

Again the engineering and producing departments lag for behind. The appearance of the pool indicates an utter lack of regard for cleanliness and efficiency of operations, extending even into the wells now being drilled. Electrification of pumping units throughout is undoubtedly responsible for the prevention of disastrous fires. The Russian engineers, with whom these matters were discussed, are fully aware of their shortcomings and claim to be studying corrective methods and applying these measures diligently. It is apparent that this has not been done to any great extent yet. *[To be continued]*

MEN IN THE INDUSTRY'S NEWS

H. B. FUQUA CLOSES ACTIVE YEAR AS PRESIDENT OF AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

»

HE HAS VISITED MANY OF LOCAL CHAPTERS DURING HIS TERM

»

WHEN the American Association of Petroleum Geologists holds its 23rd annual meeting at New Orleans on March 16 to 18, H. B. Fuqua will be the presiding officer. He was elected president of the organization at the annual meeting held in Los Angeles last year.

Fuqua is chief geologist in the Fort Worth Division for Gulf Oil Corporation. He was born at Duncan, Indian Territory (Oklahoma) on December 27, 1895, and took his geological degree at the University of Oklahoma. After working for several major oil firms in Oklahoma and Texas, he did consulting geological work for several years before joining Gulf Oil Corporation on February 6, 1922, as district geologist in North Texas with headquarters at Wichita Falls. On November 1, 1926, he was moved to Fort Worth and promoted to the position of assistant chief geologist for the Fort Worth Division. In 1928, he advanced to his present position of chief geologist in the Fort Worth Division for the company.

Fuqua shoots a good game of golf, and is an ardent football fan. These sports, and providing assistance to beginners in the geological profession, are his hobbies.

During the past year, as president of the American Association of Petroleum Geologists, Fuqua has devoted considerable time to association activities, including visits to many of the local chapters. The association has experienced a healthy membership growth the past year, and now has more members than ever before.

—Reid Photo

H. B. FUQUA

JOHN W. NEWTON, general manager of refineries for Magnolia Petroleum Company, has been elected a member of the board and a vice president of the above company and the Magnolia Pipe Line Company. He succeeds the late E. F. Swope, former head of refineries. Newton entered the services of Magnolia Petroleum Company as a chemist at Beaumont in April, 1914, and as vacancies developed he was elevated to the refinery managership.

B. P. SIBOLE, vice president of Stanolind Pipe Line Company, has been named to represent the Tulsa chamber of commerce on the citizens' committee to select a slate of board of education nominees for the coming spring election.

W. L. JAMES, purchasing agent of Stanolind Oil & Gas Company, was named chairman of the oil industry committee of the Tulsa chamber of commerce last week. Howard F. Stover, purchasing agent of Gaso Pump & Burner Manufacturing Company, was named vice chairman, and members of the committee are: H. M. Cosgrove, of the Purchasing Agents Association; W. H. Bratchez, Shell Petroleum Corporation; M. F. Bridges, Tide Water Oil Company; W. R. Brown, Ohio Oil Company; V. C. Fuller, Gulf Oil Corporation; Henry Hellinghausen, Oklahoma Pipe Line Company; E. Klappenbach, Oil & Gas Journal; Egon Koehler, Moorlane Company; O. E. McClatchey, Barnsdall Oil Company; Glenver McConnell, Shell Petroleum Corporation; H. R. Powers, Bethlehem Supply Corporation; C. A. Prichard, Mid-Continent Petroleum Corporation; F. W. Robertson, Skelly Oil Company; R. D. Robey, Jr., Robey Drilling Company; Mark L. Terry, The Texas Company; D. L. Trax, Gulf Oil Corporation; C. D. Watson, Carter Oil Company, and H. A. Wilson, Bethlehem Supply Corporation.

SAM MYERS, of Mullendore, Berry & Berry, holding considerable acreage in the Illinois basin area, came up to Flora last week from Stillwater, Oklahoma. He planned to return this week to the Mid-Continent area.

MARTIN HARTMAN, petroleum geologist, stopped in Flora, Illinois, last week on his way from White County back to Centralia. He predicted that a boom will develop in and around Centrallia this summer to rival that in any other part of the basin.

WILLIAM MATHEWSON, petroleum geologist of Wichita, Kansas, suffered critical injuries in an automobile accident near Piedmont, Kansas, March 4. He was en route home with Harry Hardesty after inspecting oil leases in eastern Kansas when the accident occurred.

MARION E. BROCK, assistant to W. B. Pyron, vice president of Gulf Oil Corporation, has returned to his headquarters in Houston after a brief trip to Mexico.

J. R. PEMBERTON, oil umpire for the Central Committee of California Oil Producers, has reached Central America, where he is collecting mammals, reptiles and other zoological items of interest with a group of noted scientists. The party left San Pedro Harbor nearly two months ago on what was slated to be a three months sea journey down the west coast of Mexico, aboard the Diesel-equipped schooner **Kinkajou.** With the oil umpire sailed Mrs. Pemberton and her young son, John Rowan.

R. T. COLTER, veteran oil developer, left California this week for an extended visit to New Zealand. Colter in recent months has acquired considerable Kern County land for development. He has proven properties in Los Angeles basin.

RALPH B. LLOYD told independent producers one day last week, that he had heard upon good authority that the Japanese-Sino war would end officially April 1. He used this as an argument why producers should curtail yields because of the possible elimination of Oriental markets, resulting in excessive crude going into storage.

WILLIAM C. McDUFFIE, former receiver of Richfield Oil Company, and Frank Long, gasoline broker, have acquired substantial interests in Mohawk Petroleum Company. Alfred Marsten remains president, and his brother Louis, vice president. Operating exclusively in Kern County, Mohawk Petroleum Company has a wide distribution of its products throughout California. At Fruitvale, it operates the largest refinery in the country with an output of 3,000,000 gallons Monthly.

DR. T. A. LINK, geologist for Imperial Oil Company, Ltd., gave an illustrated lecture on "The American Petroleum Industries Exhibit at the Century of Progress Exhibition in Chicago in 1933" before members of the Knights of the Round Table meeting in Calgary, Alberta, last week.

EVERETT BRADLEY, operator and geologist of Wichita, Kansas, is vacationing at Aransas Pass, near Corpus Christi, Texas.

L. F. CLARRY, secretary-treasurer of Commonwealth Petroleums, Ltd., has taken over similar duties with Command Oils, Ltd., succeeding Joseph Coxon. Both companies are active in Turner Valley, Alberta.

R. V. WHETSEL, general manager of Compania de Gas y Combustible "Imperio" S. A., has returned to his office in Tampico, Mexico, after a trip to the United States.

JOSEPH E. HARTIN, drilling department of Gulf Oil Corporation at Weewoka, Oklahoma, spent a two weeks' vacation

in Mexico. He was employed as a driller by Mexican Gulf Oil Company in the Tampico district for many years prior to his transfer to the United States in 1929.

ROY NEWTON, drilling superintendent of Mene Grande Oil Company, has returned to his duties in Venezuela, after an absence of several months in the United States on account of ill health.

DICK SCHWAB, independent operator of Houston, is spending several weeks in Arizona.

A. T. JONES, independent operator of Houston, recently returned from a trip to New Orleans, Louisiana.

H. EARL MARSH, head of the land department of the Amerada Petroleum Corporation in the Fort Worth division, has been transferred to Tulsa to assume charge of the company's Mid-Continent division land department. He succeeds the late H. G. Officer. The vacancy at Fort Worth created by Marsh's promotion will not be filled as the company is contemplating the removal of its land and geological departments from the above city to Tulsa to facilitate operations.

JOHN ASBURY, dean of Michigan oil scouts, and president of the Michigan Scout's Association, has ben transferred by Shell Petroleum Corporation to Centralia, Illinois.

Asbury came to Michigan as head scout eight years ago. He was elected the first president of the Scout's Association in 1929, and continued in that capacity until his transfer last week. Scouts elected Kurt deCousser, geologist and scout for Socony Vacuum Oil Company, Inc., as president succeeding Asbury. At the same time Glen Sleight, Sun Oil Company scout, was chosen to succeed Ray Hunt, Cryden Oil Company, as secretary-treasurer.

ARTHUR E. PEW, JR., executive of Sun Oil Company, Philadelphia, Pennsylvania, was recently appointed chairman of the American Petroleum Institute's 1938 committee on standardization of refinery equipment.

T. F. BIRMINGHAM, official of Margay Oil Company, Tulsa, was visiting in Houston last week. The company has acreage in the vicinity of Fairbanks field.

FRED V. GORDON, prominent in oil circles for many years, is in Nebraska, reportedly closing a deal that will enable a major oil company to drill a string of 16 wells along the westerly border of the State.

FRANK McCOY, owner of Santa Maria Inn at Santa Maria, California, emulated the late John D. Rockefeller recently, when he handed out Bull Durham sacks full of bright new shiny dimes to members of the drilling crew that successfully brought in a new well on his property. At the same time, McCoy wrote out $50 bonus checks to each man in recognition of his efforts.

BRUCE ANDERSON, son of Neil H. Anderson, formerly oil umpire for California, is a member of the group that went to Central America with Oil Umpire J. R. Pemberton, to collect specimens of mammals and zoological items. Bruce was cabled by his dad that he could return by plane, if he wanted to, to finish the current quarter at Stanford where he is a student of geology. Bruce wired back: "To heck with Stanford . . . I'm sticking with the ship!" Bruce is 19 years of age.

HARUKICHI TAKAHASHI, Japanese oil man, arrived recently in Taihoku, Taiwan, after sailing from San Francisco on the **Chichibu Maru,** January 18. Takahashi visited many fields of the United States during the fall and winter.

A. E. JOHNSON, president of Midwest Oil Company, announced in Denver last week that the company has two tests ready to drill into production in the deep Tensleep sands in the Salt Creek oil field of Wyoming, supplementing the company's three producing wells in this area.

R. A. BROWN, SR., and R. A. BROWN, JR., prominent Turner Valley oil operators, were in Eastern Canada last week arranging for organization of a new company to embrace previously privately-owned producing companies and owners of acreage in which wells are now being drilled in the Alberta oil field.

C. E. CARTER, J. HARMON LEWIS, H. R. HOLLENBACK and NELS BURTON are organizing Waukomis Oil Corporation to take over and complete the dolomite discovery in Garfield County, Oklahoma, wihch found pay from 7260 to 7280 feet.

D. AUSTIN LANE, president of Bituminous Sand Extraction Company, Ltd., told shareholders of the company meeting in Calgary, Alberta, last week of plans to expend $50,000 for research work with a view of perfecting the process invented by J. O. Absher for extracting crude oil from tar sands in northern Alberta.

W. DEY, of Home Oil Distributors, Ltd., declared legislative interference with the petroleum industry is no more justifiable than government regulation of any other business or profession in an address before the advertising and sales bureau of the board of trade at Vancouver, British Columbia, last week. He said corrective remedies for duplication of services were inherent in the industry itself.

MRS. J. R. PEMBERTON and three and a half year old son, John Byron, returned to Los Angeles this week, arriving on the steamship "Pennsylvania," from Acapulco, Guerrero, Mexico. They were members of the scientific group that left San Pedro Harbor January 15 with Oil Umpire Pemberton, on a cruise to Central America aboad the Diesel schooner "Kinkajou." Pemberton and party will return about April 1, ending what was scheduled to be a hunt for mammals, reptiles and other zoological items for various western universities.

DR. W. H. TWENHOFEL, professor of geology at the University of Wisconsin and a recognized authority on the subject of sedimentation, appeared before a meeting of the Tulsa Geological Society March 11, where he spoke on "The Rate and Continuity of Deposition of Sediments." Formerly on the geological staff of the University of Kansas and head of the state geological survey for several

Exposition Old Timers Committee Meets

Members of the Old Timers Committee of the International Petroleum Exposition which met recently to work out plans for selecting candidates and awarding medals to "grand old men" in the petroleum industry; and also to discuss plans for a granite memorial to the pioneers of the oil industry which would be unveiled on the exposition grounds in May. Front row, left to right are: J. J. Larkin, B. M. Gessel, H. R. Gruber, Chairman; C. L. McMahon, W. J Stewart. Back row, left to right: Henry Ketchem, Frank Wolfe, F. G. McClintock, W. L. Connelly, Wm. B. Way, general manager of Exposition; J. P. Flanagin, Jack Casburn, Oil Weekly, member of publicity committee. Members of committee not present: Dal Dalrymple, Chas. Flint, Jim McIntire, John K. McGoldrick, M. F. Waters, H. F. Sinclair, E. F. Cremin, Nelson K. Moody, John Mabee, Geo. F. Bell, Fred Cook, John Booker, Andrew M. Rowley, Luther Williams, Jim Downing, L. M. Ladet, Al Wall.

Those wishing to nominate candidates for the grand old man have been requested to send in their nominations to the committee.

years, Dr. Twenhofel has written a work entitled "Treatise on Sedimentation," which is used as a standard text for advanced students of geology in many colleges and universities. He spoke at Oklahoma City March 12. He will go to New Orleans, later this month to attend the annual meeting of the American Association of Petroleum Geologists.

HENRY L. DOHERTY has been elected to the board of trustees of Temple University, Philadelphia.

C. P. PARSONS, of Halliburton Oil Well Cementing Company, showed motion pictures in color entitled "Killing Wild Wells and Fires" at a combined meeting of the University of Illinois student branch, American Society of Mechanical Engineers and the Mineral Industries Society, on the university campus at Urbana last week.

DR. J. O. G. SANDERSON, of Calgary, Alberta, has been retained as geologist for Home Oil Company, Ltd.

J. BLAND CARTLETT, oil and gas engineer of San Antonio, Texas, and Eugene F. Cobb, operator of Great Falls, Montana, represented a group of Eastern and Mid-Continent interests who last week made arrangements to drill a number of wells on the Pouce Coupe structure of Alberta, Canada.

JAMES F. M. MOODIE, president and managing director of Sentinel Oils, Ltd., Turner Valley producing company, is back on the job after being laid up for several weeks as the result of an accident.

J. H. McCLURKIN, petroleum geologist recently active in northern Tennessee, has returned to Clay County following a short vacation at his home in Princeton, Indiana.

KARL CONWAY, assistant to the president, and H. A. Gidney, comptroller, Gulf Oil Corporation at Pittsburgh, have been making a tour of the company's interests in Venezuela.

V. H. BORSODI, independent operator of Houston, and Mrs. Borsodi, are visiting in Mexico City.

J. K. HUGHES, independent operator of Mexia, Texas, was a recent Houston visitor.

R. BRUCE HAYNES, Pure Oil Company, Oklahoma City, has recently been named manager of the company's office at McAllen, Texas.

L. H. PITKIN, independent operator of Houston, recently made a business trip to Louisiana.

JOHN RYND, Texas Pipe Line Company, Houston, was the principal speaker at the Houston Geological Society's regular weekly luncheon at the Lamar Hotel, March 10. His subject was "Pipe Line Transportation of Oil."

GR. R. ZMIEURANU, well known engineer with Ecole de Mine and Ecole Superieure Electricitee, Paris, France, rerently patented a gun perforator.

DIED:

DUDLEY S. GOLDING, 40, president of American Liberty Oil Company and American Liberty Pipe Line Company, and A. F. Bowden, 42, vice president of Lucey Petroleum Company, were fatally injured and W. M. Irish, III, vice president and general manager of the Atlantic Crude Oil Purchasing Corporation, was seriously injured March 4 when a private plane crashed in making a forced landing near Corpus Christi. P. F. Hotchkiss, Fort Worth, pilot of the plane, met instant death. The oil men were residents of Dallas and were en route to Corpus Christi.

Golding made his entry into the oil business at Wichita Falls as an employe of a major. He was rated as an outstanding amateur golfer, and switched to the drilling contracting business in order to have more time for his favorite sport. One of his early contracts was the drilling of a wildcat in Archer County for Clint W. Murchison. New discovery followed, and the two formed a partnership. Their holdings were later sold at a profit, and they followed separate courses until the advent of the East Texas field. New partnership was formed in 1931, and their holdings pyramided rapidly. Formation of companies to handle their production and pipe line activities followed, and operations were later spread to Conroe, Rodessa and other big fields. American Liberty Pipe Line Company operates a trunk line from East Texas field via Conroe to Houston.

E. S. BOWDEN, 56, president of Economy Oils, Ltd., and well known in the development of Alberta oil fields, and his son, Louis K. Bowden, 30, managing director and secretary-treasurer of the company, died February 27 of injuries suffered the afternoon previous in an explosion of the company's new refinery in Turner Valley. The explosion occurred as the first run was being made through the plant, completed the day before. J. A. Mjolsness, 58, oil field worker at the plant in search of work, died a few days later as a result of injuries suffered in the blast.

A. E. FAINE, 63, one of the best known producers in Southeastern Ohio fields and a director of the Ohio Pennsylvania Grade Crude Oil Producers Association, died March 4 in a Marietta, Ohio, hospital following an extended illness. He made his home in New Straitsville. He was a member of the committee that helped draft the petroleum code in Chicago and was the representative of the governor of Ohio at several conferences in Washington on petroleum problems.

JOHN C. LORENZ, 95, one of the few remaining pioneers in the old Pennsylvania fields who took part in development immediately following Colonel Edwin L. Drake's discovery, died March 2 at the home of his daughter near Titusville. Death was caused by a broken hip resulting from a fall a week earlier.

D. C. WILLIAMS, 46, president of Northern Oklahoma Gas Company, died March 8 as a result of wounds received from a shotgun which discharged when he stumbled and fell at his farm near Ponca City. Williams, a native of Fayetteville, Arkansas, graduated from the University of Arkansas as a mining engineer, and was active in various capacities with Marland Oil Company until formation of the company which he headed at the time of his death. Funeral services were held at Ponca City, March 11.

G. C. "BURT" CLARKE, head of Western American Oil Company, a drilling firm active in the Mid-Continent, died March 7 at his home in Bartlesville, Oklahoma, following a heart attack. He was 57 years old. Surviving are his widow, vacationing in California at the time of his death, and a sister of Bradford, Pennsylvania, where Clarke was born and spent the first 30 years of his life.

Drilling in 1938

[*Continued from page 16*]

diately an appreciable decline of drilling from the normal seasonal trend. But if the current levels of prices can be maintained further, drilling likely will continue heavy.

Most Areas More Active

Drilling has been more extensive this year than last year in the majority of states and districts, although some have experienced declines.

In terms of percentage, the greatest increase in drilling in the United States has occurred in Arkansas, where the 36 completions of January and February, 1938, compared with 4 in the similar period last year. That large gain reflects the current early development of the Schuler and Buckner fields and further work in the Arkansas extension of Rodessa.

The active field work and wildcatting of southwestern Arkansas extends across the state line into North Louisiana, and the latter area also has had an exceptional increase in drilling. The 85 completions there in January and February this year were 227 percent more numerous than the 26 of the similar period last year.

South Louisiana also has experienced an extraordinary expansion of drilling, having furnished 106 completions in January and February, this year, or 104 percent more than in those two months of last year.

So far this year, North Texas shows only 9 percent more completions than in the comparable period last year. But henceforth, much larger gains will be shown, because of the development of the new deep pay at K-M-A.

In addition to those mentioned

above, districts that have experienced larger than average increases in drilling over last year include: the Texas Panhandle, up 73 percent this year over last year for the January-February period; the East Texas field, up 54 percent; the Texas Gulf Coast, up 41 percent; West Texas, up 34 percent. The Eastern States as a whole show a material increase, although some states have experienced declines. Michigan drilling has been 20 percent larger this year than last year. Other increases include those of 13 percent for Kansas and 7 percent for California.

Colorado and Mississippi have had the same amount of drilling this year as last year.

Districts showing declines include: Montana, New Mexico, Wyoming, Oklahoma, Eastern Texas outside the East Texas field, South Texas, and West Central Texas.

Rigs in Operation

The accompanying table on current drilling activity in the United States represents a new feature for these columns, and shows the status of field work March 1, as compared with February 1 and January 1.

This table indicates that there has not been a great change since the beginning of the year in the number of drilling rigs in operation in the country. It foreshadows, consequently, a continuation of heavy drilling for March.

On March 1 the rigs in operation in the United States totaled 3800, compared with 3842 on February 1 and with 4089 on January 1.

K-M-A Most Active

The K-M-A field of North Texas some time ago surpassed East Texas as the most active field of the world in drilling. On March 1 the field had 131 rigs in operation, as compared with 88 in East Texas. The 131 active operations at K-M-A included 15 tests with surface pipe cemented, 44 tests drilling with rotary below surface pipe and oil string, 67 tests in process of completion, 4 tests rigging up, and 1 shut down. As compared with the 131 active tests on March 1, the field had 125 on February 1 and 65 on January 1.

Allowables

[*Continued from page 13*]

board were biased and had signed a petition again proration prior to the hearings. Among other inconsistencies, the bill alleged, was that the hearings were held in Cascade County, whereas the law provides that the meeting shall be held in the county in which the waste occurs. The exceptions further contended that no evidence of market expansion had been presented other than a 1500-barrel refinery at Pocatello, Idaho, and Kalispell, Montana, both of which will operate on Cut Bank crude, leaving no allowances for excess production in the Kevin-Sunburst field. This, according to the bill of exceptions, leaves 5174 barrels of production in excess of market outlets. The document, containing 41 pages, will complete the 1800 pages making up the records of the hearing.

Rodessa proration injunction dropped

W. M. Layton, operator in the Miller County, Arkansas, part of Rodessa, last week withdrew his injunction suit against the Arkansas Board of Conservation, to restrain the board from interfering with the production of his lease in that field. Layton had secured a temporary restraining order against the board, which was to have been heard soon as to whether it should be made permanent or not, final hearing having been twice delayed.

The board was informed Layton had placed his wells within the allowables set by the board, which was the cause of the injunction proceeding brought in chancery court at Texarkana.

Texas hearing March 19

The Texas Railroad Commission will hold its next Statewide hearing at Austin on Saturday, March 19.

The commission has announced that it will hear evidence upon which to base rules requiring reports on wells perforated, these reports to indicate the exact depth at which perforations are made. It is believed that the principal purpose of such a report would be to determine whether operators who have obtained a permit to drill a twin well have, in fact, completed that well to the sand for which it was permitted, or whether, by perforation, the operator has drilled two wells to the same producing sand.

Another phase of the hearing will be a discussion of gas/oil ratios in the Rodessa field. The commission recently increased the ratios for wells producing in the Dees-Young horizon, allowing a maximum of 5000/1. Some operators have complained that this ratio is too high.

Probably the most important question to be considered, however, is the problem of continued Sunday shut downs. Trade journals report that the demand for East Texas crude is still very weak and that there is a threat of a price break in the market for that oil, because it is being supplanted by cheaper crudes from other fields.

PIPE LINE NEWS

Producers Natural wants to build 300-mile loop

Producers Natural Gas Pipe Line Company has filed a petition with the Michigan Public Utilities Commission, for authority to construct a 300-mile loop (10-inch) gas line from the Six Lakes field to Jackson, Kalamazoo, Flint, Pontiac and Battle Creek.

Incorporators of the pipe line company include several independent gas producers, who are engaged in a battle with utilities to promote greater marketing of gas out of the Six Lakes field.

Independents use a figure of 400 billion cubic feet of developed gas reserves in Michigan as the basis of their claim of adequate reserves to warrant the 300-mile loop, which would cost a minimum of $2,000,000. Highest estimate ever made, outside of the Independent group is 100 bilion cubic feet, with the state, U. S. Bureau of Mines, and several leading gas engineering firms estimates ranging down to 60 billion and up to 80 billion cubic feet, it is reported.

Both the Consumers Power Company and American Light & Traction Company have eight-inch lines pulling from the Six Lakes field, serving the Saginaw-Bay City Valley area, Lansing district, and Grand Rapids, with a take of approximately 24 million feet daily from Six Lakes.

New gas line to St. Louis planned

Negotiations that may result in supplying the St. Louis market with straight natural gas from Texas fields by the Panhandle - Eastern Pipe Line Company were revealed by City Counselor Wayman of St. Louis last week. The project would entail construction of a 65-mile line from Bowling Green, Missouri, nearest point to St. Louis now reached by the Panhandle-Eastern company's facilities.

At present St. Louis is served with a mixture of natural and manufactured gas by the Laclede Gas Light Company, the natural product being supplied by the Mississippi River Fuel Corporation, subsidiary of the Standard Oil Company.

Eastern Price Cut

Reduction of 15-17 cents per barrel considered purely local but has weakening influence on whole market; other factors favorable.

THE oil industry's markets have been less steady, following the reduction of crude oil prices in the Pennsylvania grade fields March 7, despite the fact that the Eastern district price cutting reflected, primarily, a local unfavorable market situation.

It was generally believed that the Pennsylvania price reductions would not extend into other districts of the country. But the crude oil markets in general are not exceptionally strong, and in some areas, particularly in the Mid-Continent, signs of weakness persist.

Oklahoma Crude Market

In Oklahoma, for instance, the state Corporation Commission, early last week learned in a hearing that several major purchasers of crude oil believed the Oklahoma allowable should be cut 25,000 barrels, or to 450,000 barrels daily for March.

In Southern Oklahoma, in particular, production has been running higher than the requirement of the purchasing companies. The Carter Oil Company, subsidiary of Standard Oil Company of New Jersey, recently stated that it needed to reduce purchases about 6000 barrels a day, in order to bring them down to the quantity it could market. Several other companies have agreed to take over some of the Carter Oil Company connections, and Carter also will be relieved of about 3500 barrels a day of takings by reducing purchases to 25 barrels a day in several of the South Oklahoma fields.

Product Prices Unchanged

In the face of the unsettled crude oil market situation, the prices for refined products, last week, remained about unchanged from the levels that had prevailed for several preceding weeks.

Particularly encouraging was the continued stability of the gasoline market, despite the fact that gasoline stocks are at unprecedented levels. The gasoline prices at refineries have held steady for several weeks, although they are at comparatively low levels, being under the quotations of a year ago.

Another encouraging factor is the natural gasoline market, which has been on the up-grade in the past several weeks. The natural gasoline prices, last week, were generally ⅛-cent a gallon higher than one week previously.

The kerosene market also has been relatively firm in recent weeks, reflecting the commencement in some areas of spring agricultural activities.

The markets for light fuel oils, last week, were stimulated temporarily by cooler weather, which resulted in some urgent buying. However, the market for burning oils is not particularly strong basically, as the season of heavy consumption is waning, while the inventories of light fuel oils are larger than desirable.

General Situation

The general market situation in the industry, meanwhile, is moderately favorable.

Crude oil production control remains unusually strict, and it is promised that the output of the wells will be held in close conformity with market requirements, even if emergency orders are necessary in the leading producing states. However, the current program of proration, covering March, apparently will be generally effective.

The statistics of the industry, last week, remained generally about the same as in the previous week, with the exception of an increase in production. However, the crude oil output normally shows such an increase in the early part of each month.

In the week ended March 5, United States crude oil production increased about 17,000 barrels, or to 3,339,700 barrels. That was 12.4 percent more production than in the corresponding week of last year. This expansion of production was greater than the increase which has occurred meanwhile in consumption of petroleum.

Refinery operations continue at moderate proportions. In the week ended March 5, crude oil runs through stills averaged 3,130,000 barrels daily, or 40,000 barrels a day less than in the previous week. At the new level, the refinery activity was 6.8 percent higher than in the corresponding week of last year. Such an expansion of refinery work is justified, as petroleum demand has been showing a similar gain over a year ago.

The situation regarding inventories

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 5	3,316,450	3,155,000	304,494,000	86,484,000	118,619,000
February 12	3,324,500	3,150,000	304,915,000	87,813,000	119,293,000
February 19	3,369,250	3,150,000	305,219,000	89,774,000	119,948,000
February 26	3,322,800	3,170,000	305,167,000	†90,719,000	120,958,000
March 5, 1938	3,339,700	3,130,000	.....	*92,151,000	122,471,000
March 6, 1937	3,298,800	2,930,000	†287,574,000	80,102,000	99,534,000
Change in past year	+12.4%	+6.8%	+6.1%	+15%	+23%

* All time peak. † Stocks, February 20, 1937.

remains mixed, with crude oil stocks at satisfactory levels but with the supplies of gasoline and fuel oil excessive.

Crude oil stocks in the United States totaled 305,167,000 barrels on February 26, having declined slightly in the preceding seven days. These stocks of crude oil were 6.1 percent larger than those on hand one year previously.

Gasoline Stocks

Gasoline stocks, which rose to unprecedented levels several weeks ago, have continued to expand. In the week ended March 5, the stocks increased almost 1,500,000 barrels more, or to 92,151,000 barrels. That was 15 percent more than the supply on hand one year previously.

A 15 percent expansion of gasoline stocks since a year ago is not justified, as the demand for gasoline has been running lately only a little higher than one year ago.

Fuel oil inventories also are now far out of line with market requirements. The total of fuel oils on hand aggregated 122,471,000 barrels on March 5, or 23 percent more than on the comparable date of last year. This increase in fuel oil stocks is considerably out of line with the gain that has occurred in fuel oil consumption.

Pennsylvania Reductions

The reduction of Pennsylvania grade crudes became effective March 7, when the leading purchasers revised their postings downward 15 to 17 cents a barrel. Prices of Bradford, Alleghany, and Buckeye grades were reduced 15 cents a barrel, and all other grades were cut 17 cents.

The reductions were described as being based on the fact that production has been running considerably in excess of demand for several weeks. Refiners in the district were cutting runs to stills, because of the unstable position of prices for refined products, particularly lubricating oils.

The last previous change in Pennsylvania grade crude was a 15 to 18-cent reduction made December 1, 1937.

New prices in the Pennsylvania grade fields include the following: $2.05 a barrel for Pennsylvania grade in Tide Water lines, Bradford-Alleghany district; $1.98 a barrel for Pennsylvania grade in National Transit lines; $1.71 in Southwest Pennsylvania lines; $1.65 for oil in the Eureka lines of West Virginia; and $1.55 for oil in Buckeye lines, Macksburg, Ohio.

Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets, f.o.b. refineries, at 2⅜ to 2½ cents a gallon, and sales were reported from 2¼ to 2⅜ cents f.o.b. Breckenridge, Texas.

Refinery Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 4 to 4¼ cents a gallon; 63 to 69 octane, 4⅜ to 4½ cents; 67 to 69 octane, 4⅝ to 4⅞ cents; and 70 to 72 octane, 4⅞ to 5⅛ cents.

Corresponding prices in the Chicago market were as follows: 4 to 4⅛ cents, 4¼ to 4⅝ cents, 4⅝ to 4¾ cents, and 4⅝ to 5 cents.

In East Texas the most common gas-

CRUDE OIL PRICES

Postings for Pennsylvania grade crudes were reduced 15 to 17 cents a barrel, effective March 7.

All other prices in the United States remained unchanged, as shown in these columns March 7, 1938, pages 72 and 73.

The complete tables of prices are published only in the first issue of each month. The new Pennsylvania grade prices are as follows:

Bradford-Alleghany	$2.05
National Transit Lines	1.98
Southwest Penna. Pipe Line	1.71
Eureka Pipe Line, W. Va.	1.65
Buckeye Line, Macksburg, Ohio	1.55

Summary of Wells Completed in the United States Week Ending March 12, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	....	....	....	....	.....	....	1
Arkansas	5	5	....	....	2,108	44	13
California	15	15	....	....	13,701	222	239
Colorado	....	....	....	....	.....	3	3
Florida	....	....	....	....	.....	....	.....
Illinois	12	8	....	4	1,534	149	5
Indiana	....	....	....	....	.....	14	32
Kansas	36	24	....	12	31,085	405	398
Kentucky	12	6	3	3	395	142	48
Louisiana	20	16	....	4	8,451	230	134
Michigan	13	11	....	2	2,056	168	162
Mississippi	....	....	....	....	.....	5	5
Montana	....	....	....	....	.....	7	16
Nebraska	....	....	....	....	.....	....	.....
New Mexico	7	6	....	1	8,398	101	132
New York	....	....	....	....	.....	14	3
Ohio	22	8	12	2	147	209	351
Oklahoma	41	27	1	13	6,723	437	569
Pennsylvania	2	1	1	....	1	44	20
Texas	232	184	7	41	334,522	2,602	2,678
Utah	....	....	....	....	.....	....	.....
West Virginia	11	3	6	2	8	188	185
Wyoming	3	....	2	1	.....	16	20
Total this week	431	314	32	85	409,128	5,000	5,015
Total last week	458	290	43	124	368,129	....	.....
Total this year	5,000	3,375	473	1,152	4,155,439	....	.....

Comparison of Permits Granted for New Wells

STATE	Week Ending Mar. 12	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	5	8	48	20	240
California	25	54	255	258	1,584
Louisiana	17	34	266	175	1,227
Kansas	31	48	344	419	2,663
Michigan	15	25	115	171	958
Oklahoma	34	55	407	501	2,711
Texas	170	533	2,741	3,274	17,238
Total	297	757	4,176	4,818	26,621

U. S. Production Up

Slight increase still leaves nation yielding 47,100 barrels less than Bureau of Mines requirement estimate for March.

UNITED STATES crude oil production showed a relatively small increase of 9947 barrels in the week ended March 12, having averaged 3,344,500 barrels daily. That was 47,100 barrels less than the average daily output estimated by the Bureau of Mines as required by the market during March.

The small increase over the previous week resulted from gains in Texas, Oklahoma and Kansas, that more than offset declines in California and Louisiana.

Texas last week averaged 1,260,900 barrels daily, which was 9550 barrels a day more than in the previous week, 84,000 barrels less than the Bureau of Mines recommendation and 232,273 barrels less than the allowable prescribed by the state.

Oklahoma output was up 3600 barrels at 526,075 barrels daily, having been 21,625 barrels below the Bureau of Mines estimate, but 51,075 barrels above the state allowable.

Kansas Gains

Kansas had a gain of 6225 barrels, averaging 173,100 barrels daily, which was 3600 barrels less than the federal allocation, but 3842 barrels more than the state allowable.

California averaged 720,200 barrels daily, or 4753 less than in the previous week. This is 25,600 barrels more than the estimated demand and the recommendation of the Central Committee of California Oil Producers.

Louisiana output was down 925 barrels to 256,400 barrels daily, exceeding the Bureau of Mines estimate 17,000 barrels and the state allowable 12,270 barrels a day.

United States Crude Oil Production
Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Mar.)	State Allowable in March	BARRELS DAILY FOR WEEK ENDED March 12	BARRELS DAILY FOR WEEK ENDED March 5
TEXAS—				
Texas Panhandle	.....	.....	66,800	67,300
North Texas	.....	.....	64,500	63,950
West Central Texas	.....	.....	26,900	27,500
West Texas	.....	.....	180,900	178,500
East Central Texas	.....	.....	90,200	89,600
East Texas Field	.....	.....	427,100	426,100
South Texas	.....	.....	216,300	215,200
Texas Gulf Coast	.....	.....	188,200	183,200
Total Texas	1,344,900	1,493,173	1,260,900	1,251,350
CALIFORNIA—				
Long Beach	.....	.....	57,300	57,950
Santa Fe Springs	.....	.....	38,100	39,496
Huntington Beach	.....	.....	35,400	33,753
Dominguez	.....	.....	28,600	30,680
Inglewood	.....	.....	16,200	14,936
Ventura Avenue	.....	.....	25,800	37,193
Seal Beach	.....	.....	8,500	8,486
Midway-Sunset	.....	.....	74,500	74,701
Elwood	.....	.....	7,400	7,600
Kettleman Hills	.....	.....	80,600	79,519
Mountain View	.....	.....	12,400	12,979
Playa del Rey	.....	.....	6,900	7,589
Wilmington	.....	.....	96,000	102,228
Others	.....	.....	232,500	217,843
Total California	694,600	*694,600	720,200	724,953
OKLAHOMA—				
Oklahoma City	.....	.....	129,150	124,075
Seminole Area	.....	.....	101,975	85,100
Crescent	.....	.....	7,450	6,800
Lucien	.....	.....	13,000	12,150
Fitts	.....	.....	59,100	62,475
Edmond	.....	.....	6,800	7,500
Moore	.....	.....	7,125	7,200
Others	.....	.....	201,475	217,175
Total Oklahoma	547,700	475,000	526,075	522,475
LOUISIANA—				
North Louisiana	.....	.....	78,800	80,025
South Louisiana	.....	.....	177,600	177,300
Total Louisiana	239,400	244,130	256,400	257,325
KANSAS—				
Ritz-Canton	.....	.....	6,475	6,200
Chase	.....	.....	5,725	5,525
Hollow-Nikkel	.....	.....	3,675	3,025
Sedgwick	.....	.....	3,900	3,775
Burrton-Haven	.....	.....	11,250	10,950
Lorraine	.....	.....	2,425	2,800
Russell County	.....	.....	28,125	29,600
Silica—West	.....	.....	14,700	13,975
Silica—South	.....	.....	2,450	1,725
Others	.....	.....	94,375	89,300
Total Kansas	176,700	169,528	173,100	171,150
NEW MEXICO	105,100	101,100	105,050	105,200
MICHIGAN	51,600	.....	51,300	51,100
ARKANSAS	38,200	.....	48,925	49,775
MOUNTAIN STATES—				
Wyoming	46,400	.....	47,400	46,900
Montana	13,300	.....	12,200	13,500
Colorado	4,500	.....	4,350	4,200
Total Rocky Mountain States	64,200	.....	63,950	64,600
EASTERN STATES—				
Pennsylvania Grade	.....	.....	78,900	80,500
Southern Illinois (New Pools)	.....	.....	26,850	27,300
Illinois-Indiana (Old Pools)	.....	.....	11,900	11,400
Others, Eastern	.....	.....	20,950	21,700
Total Eastern States	129,200	.....	138,600	140,900
Total United States	3,391,600	.....	3,344,500	3,334,553

*Recommendation of Central Committee of California Oil Producers.

oline, 60-62 400 end-point, was priced generally around 4¼ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4⅛ to 4⅜ cents a gallon for the 41-43 water white grade, and from 4¼ to 4½ cents for the 43-44 water white grade. Corresponding prices in the Chicago market were 4⅛ to 4¼ cents and 4¼ to 4½ cents.

Fuel Oils Steady

Fuel oil prices were mostly unchanged. In the Chicago market oil was priced from 4 to 4¼ cents a gallon. The No. 1 white oil was priced from 4 to 4⅛ cents, and No. 1 straw from 3⅞ to 4 cents. No. 2 straw was 3¾ to 3⅞ cents and No. 2 dark from 3½ to 3¾ cents. No. 3 oil was 3½ to 3¾ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 95 cents to $1.10 to industrial buyers. No. 5 oils were 80 to 85 cents for domestic and 75 to 85 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 52½ to 60 cents a barrel.

Financial Field

More reports on 1937 operations show increased profits . . . Barnsdall, Pure and Tide Water Associated among units showing gains.

SEVERAL annual reports of oil companies have been published recently, in addition to those previously mentioned in these columns.

Amerada Corporation

Amerada Corporation, in 1937, had its best year since 1930. Net profit of the company for 1937 has been estimated around $2,250,000, after all deductions. The company earned $1,983,901 in 1936.

Barnsdall Oil

The Barnsdall Oil Company and subsidiaries have reported for 1937 a net profit of $1,903,029 or 84 cents a share, compared with $2,262,544, or $1.01 a share, earned in 1936. The figure for 1937 included $857,852 profit on the sale of East Texas properties, and represented net income after the usual deductions and after deducting $2,730,576 for lease purchases, including $1,780,836 involved in acquision of Greta Oil Corporation, December 31, 1937. In 1936, the company's income other than operating income was $260,080; and lease purchases required $1,006,793.

E. B. Reeser, president of Barnsdall Oil Company, said in the annual report: "Were it not for the fact that the purchase of the Greta Oil Corporation had been concluded as of December 31, 1937, the net earnings for 1937 would have been $1.63 a share against $1.01 a share for 1936, inasmuch as, under the company's system of bookkeeping, there was charged against profits for 1937, by reason of the Greta purchase, the equivalent of 79 cents a share."

Reeser also stated: "The profit on the sale of the East Texas leases is a non-recurring profit and is equivalent to 38 cents a share. Excluding the Greta Oil Corporation purchase and the profit upon the sale of the East Texas leases as extraordinary transaction, the net profit from operations carried on during the year was $1.25 a share.

Barnsdall Oil Company produced 9,102,607 barrels of crude oil in 1937, compared with 8,214,437 barrels in 1936.

Canadian Oil

F. H. Littlefield, president of Canadian Oil Companies, Ltd., recently advised stockholders by letter that the company's annual report, then in the course of preparation, would show a considerable improvement both in sales and profits for the past year. In 1936, the company had a deficit of 13 cents per share on common stock after paying deferred dividends, but a dividend of 50 cents a share was paid on the common out of surplus. Dividends at this rate were continued in 1937.

Texas-Canadian

Net operating profit of Texas-Canadian Oil Corporation for the first nine months of its fiscal year, ended January 31, is estimated at $680,883, before depreciation, depletion and taxes. This compares with $464,037 for the same period of the previous year, or an increase of about 46 percent. Gross income from oil and gas sales totaled $864,701, against $590,325.

January output decreased in value from $105,142 for December to $102,325 for January, primarily due to the Sunday shutdown which affected the company's Texas properties.

Fohs Oil Company

The annual report of Fohs Oil Company shows for 1937 a net profit of $1,476,458, after all deductions. The company's net production of crude oil in 1937 was 2,247,382 barrels, compared with 2,006,017 barrels in 1936.

Pacific Western

Pacific Western Oil Corporation experienced in 1937 some decline in earnings, because of higher operating expenses and a substantial increase in intangible development costs, consisting mainly of drilling expense. The company, in 1937, reported a net profit of $1,388,710, after usual deductions, compared with $1,582,325 in 1936.

This company, on September 1, 1936, began charging intangible development costs as current expense instead of capitalizing and amortizing them over a period of years, as formerly. Consequently, these costs amounted to $794,270 in 1937, compared with $47,880 in the previous year.

Pure Oil Company

The Pure Oil Company, during the past year, showed a considerable improvement in earnings. The company reported for 1937 a net profit of $11,403,805, compared with $7,658,372

January Crude Production Lowest Since Early 1937, Bureau of Mines Reports

Washington, D. C.—Daily average oil production in January fell to the lowest figure for any month since February, 1937, amounting to but 3,419,600 barrels, as compared with 3,438,000 barrels in December, it was reported by the Bureau of Mines March 11.

January was the fifth successive month in which a decline was noted, following the reaching of an all-time high of 3,712,600 barrels a day in August of last year. The average for the month however was 12,800 barrels above the Bureau of Mines forecast, after actual output for two months had been under predictions.

Total domestic production for the month was 106,007,000 barrels compared with 106,579,000 barrels in December and 98,567,000 barrels in January, 1937, the bureau reported.

Production in East Texas increased slightly, but the output in most of the other important districts of the state declined, so that the daily average output for Texas fell from 1,336,500 barrels in December to 1,317,700 barrels in January, it was said in a discussion of conditions in the various fields.

Developments in the Wilmington field were responsible for another increase in California from 705,000 barrels daily in December to 709,900 barrels the following month.

Oklahoma's production showed a further small decline, the January average being 561,600 barrels compared with 569,500 barrels in December. A decline was recorded in New Mexico but Louisiana output continued upward under the impetus of developments in the coastal field. Another small increase was registered in Illinois, the daily average of 36,400 barrels being the highest in about 20 years.

"The relationship of supply to demand for crude petroleum in January was about the same as in December, the small decline in production being offset by one of about the same size in crude runs, and stocks again registering a gain of several hundred thousand barrels," the report commented.

Domestic demand for motor fuel in the initial month of the year was 35,176,000 barrels, exports were 3,090,000 barrels. Compared with a year ago, it was pointed out, these figures indicate a gain in domestic demand of 4.4 percent and in total demand of 4.3 percent. "Although these gains in demand appear material, they were smaller than generally expected, as the demand for January, 1937, was thought to be abnormally low," the bureau explained.

Increase in gasoline stocks was accelerated, the total for finished and unfinished rising to 85,873,000 barrels, or 8,883,000 barrels above the level of the preceding month. According to the American Petroleum Institute, another 6,000,000 barrels was added to stocks in February.

Of primary interest in the January figures, it was pointed out, was the indicated decline in fuel oil consumption. Domestic demand for light fuels was 15 percent lower than a year ago, heavy fuel 11 percent lower. The domestic demand for the two classes combined was lower even than in January, 1936.

earned in 1936. These figures are after all usual deductions.

In the annual report of Pure Oil Company, Henry M. Dawes, President, expressed the hope that current unsatisfactory conditions in the refining and marketing divisions of the industry might be improved during this year. He also indicated hope that the present crude oil prices might be maintained, through benefit of strict proration of crude production. In this connection, he said: "While the lack of parity between the refining and marketing prices and those of crude oil imposes great hardship upon those phases of the business, a lower price for crude would not serve to restore parity but simply to establish the whole industry on a lower level."

Dawes described 1937 as a year of noteworthy development in Pure Oil Company's history. These developments included: the payment of all the company's outstanding long-term and bank indebtedness; the retirement of its 8 percent stock; and the increase in working capital. He estimated that the company's crude oil reserves now total between 400,000,000 and 500,000,000 barrels, as compared with 73,000,000 barrels twelve years ago, or in 1925. During those twelve years, the funded and bank debt of the company was completely paid, although the period included the years of the great depression.

Tide Water Associated

It is indicated that Tide Water Associated Oil Company, in 1937, earned about 45 percent more than in 1936, when a net income of $10,217,928 was reported. The profit in 1937 was the greatest in the history of the company. During the year, the company established new high records in production of crude oil, refinery operations, and sales of products.

The Tide Water Associated Oil Company is expected to show for the first quarter of 1938 a record of earnings closely comparable with that for the similar period of last year. This favorable prospect looms despite lower gasoline prices in most sections of the country and is possible because of the company's operations on the Pacific Coast, where prices have remained stable.

Woodley Petroleum

Woodley Petroleum Company has reported for 1937 a net income of $215,590, or slightly less than the $216,520 earned in 1936.

Houston Oil

Stockholders of Houston Oil Company of Texas, at their annual meeting at Houston, March 8, reelected the 13 directors of the company. The directors will meet March 21 and elect officers.

South Penn Oil Company last week declared an extra dividend of 12½ cents per share as well as the regular quarterly dividend of 37½ cents, payable March 31 to stockholders of record March 15. On the corresponding date of last year, the company declared an extra of 22½ cents, making the total payment 60 cents per share.

Oil at Capitols

[*Continued from page 12*]

part of the state government or the industry on a stabilization program was approval by the Central Pennsylvania Oil Producers Association of a plan to draw up an oil conservation act for submission to the legislature at a special session that may be called this spring or at the regular session early next year.

Meanwhile, however, conditions within the industry grew more acute. Production of Pennsylvania grade crude exceeded runs to stills since the December 1 reduction. Stocks of refined products are higher than a year ago, and prospects for immediate improvement of prices on lubricating oils are not good.

Fourth Cut Lately

Marking the fourth successive cut since September 1, 1937, prices of Pennsylvania grade crude oil were reduced March 7 from 15 to 17 cents a barrel. The 15-cent reduction was posted in the Allegany and Bradford regions, bringing the price to $2.05 a barrel, and in Southeastern Ohio, where the quotation is now $1.55. The larger reduction applied to Northwestern Pennsylvania fields, now carrying prices ranging from $1.93 to $1.98; to Southwestern Pennsylvania fields where the quotation is $1.71, and in West Virginia where a new price of $1.65 was set.

Previous reductions were: September 1, 1937, 22 to 27 cents a barrel; October 12, 25 cents a barrel, and on December 1, 15 to 18 cents. Present prices are the lowest of 2½ years, prices ranging from $1.57 to $2.00 a barrel being in effect from September 6 to October 28, 1935. The latest reductions also marked the first time since the winter of 1932-33 that prices were lowered for the fourth successive time during a low-consuming period.

New Pennsylvania Prices

New quotations of the Joseph Seep Purchasing Agency of the South Penn Oil Company are: New York Transit, Bradford Transit and National Transit lines in the Bradford field, $2.05; Bradford Transit lines in the Allegany field, $2.05; South West Penn lines, $1.71; Eureka lines, $1.65; Buckeye lines, $1.55. Postings of the Tide Water Associated Oil Company in the Bradford and Allegany region coincide with those of the Seep agency.

Northeastern Pennsylvania qoutations of the Pennzoil company are: Group A, including Cochran, Franklin, Hamilton and Doolittle districts, $1.98; Group B, comprising the Titusville district, $1.97; Group C, including Turkey and Tidioute districts, $1.96; Group D, comprising the Bear Creek and Porkey districts, $1.95, and Group E, including Eidenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts, $1.93.

Cities Service Oil Company and the Valvoline Oil Company, making purchases in the Oil City-Titusville district, posted a price of $1.98, while Pure Oil Company, purchasing in Cabin Creek, Bradford Hollow and Kelly Creek, West Virginia, posted a price of $1.65.

The price of Corning grade crude remained unchanged at $1.27.

New Atlantic tanker makes trial run

The Atlantic Refining Company's new 18,500-ton tanker, the "J. W. Van Dyke," made her trial trip from the yards of the Sun Shipbuilding & Dry Dock Company, Chester, Pa., recently. The ship, launched on November 20, is scheduled to go into service between Philadelphia and Texas Gulf ports immediately following successful completion of the trial trip and acceptance by the owners.

In addition to being the world's largest welded ship, the "J. W. Van Dyke" embodies a number of entirely new features in the application of modern engineering principles to marine construction, and is expected to set a record of unusually low fuel consumption. The first American-built turbo-electric tanker, the vessel is the fifteenth electrically propelled ship designed by Atlantic engineers during the past fifteen years, making Atlantic the owner and operator of more electrically propelled vessels than any other company in the world.

For the first time, standard voltage and frequency have been applied to the main propulsion turbo-generator which operates at 2300 volts, supplying its power through a synchronous propelling motor that develops 5000 horsepower at the synchronous speed of 90 revolutions a minute. Engine room auxiliaries are unusual in that they are operated by alternating current and take their power from the main turbo-generator when the ship is running at sea at full speed. Maximum economy of operation is expected to result from this production of both main and auxiliary power by the main turbo-generator. Power from the auxiliary turbo-generator is required only when maneuvering.

Cargo discharge pumps capable of discharging 630,000 gallons an hour—about three times the usual rate—will cut down the time in port, an important factor in economical tanker operation. The centrifugal pumps are of the deep-well type, located in amidship pump room, with their explosion-proof motors on deck. The pump room is a new departure to the extent that it is entirely without electric wiring lights, or stuffing boxes. Illumination is provided by floodlights behind glass set in the deck.

Cargo capacity of the "J. W. Van Dyke" is 6,552,000 gallons, enough to supply the average annual requirements of approximately 10,000 motorists. The vessel has an overall length of 543 feet, a beam of 70 feet and a depth of 40 feet. Her sea speed will be 13.25 knots.

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

New Field Looms

Wildcat on Highwood-Sinclair structure, southwest of Turner Valley, bails oil from above lost tools.

HOPES that the Highwood-Sinclair structure, southwest of Southern Turner Valley, Canada, may be proven commercially productive in the Madison limestone were strengthened last week when Green Valley Petroleum, Limited's Banner 1, wildcat on Legal Subdivision 6, Section 34, Township 17, 3-w5, gave up two feet of crude when the six-inch bailer was run from just above the lost tools, which are about 250 feet from the bottom. The test has been standing since a set of jars broke in the hole a week ago. The oil came from the limestone.

The Banner wildcat is now 100 feet in the crystalline marker in the Madison limestone. Since entering the Fernie shale, formations have been running considerably thicker than at Turner Valley, where the crystalline above the porous horizon is usually between 30 and 40 feet thick. When necessary tools are obtained for the fishing job, and this operation is expected to be completed with little delay, the six-inch will be run to the lime. The hole is bottomed at 5796 feet.

To Drill Pouce Coupe

Western Securities, Ltd., announced that a contract had been signed for tests of the Pouce Coupe structure in Northern Alberta. The company holds leases on 50,077 acres and the first well will be drilled on Section 7, Township 12, 12-w5. The discovery was drilled on this structure in 1936, and, after blowing wild for several months, was finally brought under control. The area is believed to have oil possibilities and is compared to the Salt Creek field of Wyoming. Gas from the discovery will be used in drilling operations, and if future development results in a large proven gas reserve, plans call for construction of lines to West Coast cities.

On the Battleview structure, proven last year by a gas well having a gauge of 50,000,000 cubic feet a day, Pacalta Oils, Ltd.'s 1, east of Wainwright, has successfully shut off salt water. Encouraging oil and gas showings were registered at the well, which is 2400 feet east of the discovery. Bottom is at 2071 feet, 10 feet in the sand. Equipment for a production test was to be installed this week.

The first train load of Turner Valley crude, amounting to 24 cars of slightly over 200 barrels each, was moved to Saskatchewan last week by National Petroleum Corporation, Limited, through Gas & Oil Products, Limited, the first Turner Valley independent marketing organization to handle crude in appreciable quantities. National Petroleum Corporation has one producing well in Turner Valley with a daily potential of 1051 barrels, and a No. 2 drilling at 6250 feet.

Producers Encouraged

Further encouragement to Turner Valley operators, who are producing under proration set by major buying companies at 42 percent of potential, was given in the announcement last week that Anglo-Canadian Holding & Developemnt Company, Limited, had obtained controlling interest in Central Refiners, Ltd., which has a 1000-barrel refinery nearing completion at Brandon, Manitoba. Anglo-Canadian announced that capacity of the plant will be increased to 3500 barrels and furnish an additional outlet for crude of affiliated companies.

MAHOMED ZAHIR KHAN
Ruler of Afghanistan, a nation which will be subjected to exploratory drilling as soon as preliminary geological work of Inland Exploration Company is completed.

Lack of interest displayed by stockholders in a plan whereby four Anglo-Canadian associated companies—Foundation Petroleums, Ltd., Prairie Royalties, Ltd., Firestone Petroleums, Ltd., and Monarch Royalties, Ltd.—would participate in development of some 5000 acres to be acquired by a new company to be known by Mission Oil Company of Canada, Ltd., brought dissolution of the project last week. The acreage will be developed by the Anglo-Canadian Holding & Development Company, the derrick for the first well having been erected last week on Legal Subdivision 16, Section 31, Township 18, 2-w5, one mile west of Royalite Oil Company's 28, fair crude producer. At least one other well is planned for this acreage this year.

Royalite Oil Company's 28, completed recently with a potential of 450 barrels daily, is now rated at 800 barrels following acidization. This company's 29, most northerly well drilling in Turner Valley, was drilling at 6708 feet as the week closed. Drilling was slow in a hard band 423 feet in the Madison. Location is Legal Subdivision 7, Section 27, Township 20, 3-w5.

Davies Petroleums, Limited, announced Russell V. Johnson, Calgary geologist, located the well site for the company's No. 4 in the center of Legal Subdivision 10, Section 32, Township 18, 2-w5, a lease of British Trans-Canada Oils, Limited. The rotary rig now in use at No. 1, setting casing to the lime last week at 6900 feet on Legal Subdivision 2, Section 29, Township 18, 2-w5, is to be moved to No. 3, releasing a cable outfit which will be used to start No. 4.

Among other new operations were Royal Canadian Oils, Limited's 2, rigged up and ready to spud on Legal Subdivision 4, Section 16, Township 18, 2-w5, and Commoil, Limited's 2, for which derrick work was starting on Legal Subdivision 10, Section 29, Township 18, 2-w5. Location is on the lower half of an 80-acre tract held by Com-

moil. On the northern half of this tract is the company's No. 1, largest crude producer of Canada with a potential of 2998 barrels daily. Other Turner Valley wells which are expected to get under way this month are Brown Oil Corporation, Limited's 5, West Flank Oil Company, Limited's 4, Royalite Oil Company's 32, D. & D. Oils, Ltd.'s 1, and East Crest Oil Company, Limited's 4.

West Flank Oil Company, Limited's 1, Legal Subdivision 1, Section 32, Township 18, 2-w5, and Spy Hill Royalties, Limited's 1, Legal Subdivision 16, Section 20, Township 18, 2-w5, were cleaning out after 600-quart nitro-glycerine shots. Eighty feet of debris jammed up the casing at the West Flank well. This test, completed several months ago, had a potential of 312 barrels daily before shot. The Spy Hill well is a recent completion and no potential had yet been taken. Indications are that the shot increased the gas pressure.

In Saskatchewan, the Lloydminister and Battleford areas, 150 miles northwest of Saskatoon, were described as having oil and gas possibilities equal to Turner Valley by A. J. Macauley of Cut Knife in the provincial legislature at Regina. He urged provincial government assistance to those who discovered and developed natural gas fields in those areas.

Production curb planned by Japanese refiners

Because of a sudden over-supply of gasoline due to the government's gasoline consumption economization policy, Nippon Oil Company and other leading refiners are discussing a quota system by which each firm is to operate at 85 to 90 percent of capacity. Stabilization of the market price and alleviation of the uncomfortable storage situation are the objectives of the proposed measure.

Ship rig to Iran

A rig for drilling Amiranian Oil Company's first wildcat on the 190,000-acre concession of that company in northeastern Iran was scheduled for shipment from the United States to the northern end of the Persian Gulf the first week in March.

Whether the rig will be used on the Gurgan plain, near the Caspian sea, or at a point east of there where geologists have been active, has not been announced by the company.

Transportation of the rig from the port at the northern end of the Persian Gulf to location will be made partly by truck and partly by rail.

Venezuela output down

Although Venezuela's production in January, amounting to 15,103,985 barrels, represented a substantial decrease from the 16,807,306 barrels produced in December, it represented an increase over the amount produced in January of 1937, when a recovery of 8,956,623 barrels was recorded.

Venezuela accounted for 33 completions during January. Exclusive of wildcats, 36 drilling operations were underway at the close of the month.

Anglo Ecuadorean heads producers in Ecuador

Ecuador's crude petroleum production of about 2,161,444 barrels in 1937, according to Dayle C. McDonough of Guayaquil, was divided among eight companies as follows (figures in gallons): Anglo Ecuadorean Oilfields, Limited, 86,924,147; Carolina Oil Company, 2,185,485; Ecuador Oilfields, Limited, 1,178,998; Concepcion Ecuador Oilfields, Limited, 355,414; Ecuador Tropical Oil Company, 48,354; Petropolis Oil Company, 46,010; International Petroleum Company, 32,702; and San Francisco Oil Company, 9532 gallons.

Divided by months, Ecuador's production in gallons in 1937 was as follows: January, 7,562,442; February, 6,753,059; March, 7,590,561; April, 7,616,812; May, 7,965,641; June, 7,673,241; July, 7,819,356; August, 7,760,908; September, 7,481,163; October, 7,646,216; November, 7,402,612, and December, 7,508,631 gallons.

To deepen old English well

Alfred Nutting of London, England, advises that D'Arcy Exploration Company, subsidiary of Anglo-Iranian Oil Company, will explore oil possibilities of the region around Hardstoft, Derbyshire, on leases formerly held by the Duke of Devonshire. Hardstoft 1, an old well drilled in 1919 which has produced intermittently 3682 tons of oil since then, will be deepened 500 feet to test possibilities of the Carboniferous series. Hardstoft 1 originally was drilled by the English government.

Oil on Gaspe Peninsula, says catholic bishop

It is reported from the Quebec provincial department of mines of Canada that geologists now are studying the subsoil of the Gaspe Peninsula to discover oil fields. The catholic bishop of Gaspe declared recently that the "existence of layers of oil" has been proven and that the population of the peninsula will benefit greatly if and when actual production begins.

Surveys for oil are financed privately, but the department of mines and the provincial government are interested indirectly.

Preliminary reports will soon be furnished to companies who possibly might be interested in the production of oil in this province.

Foreign crudes analyzed

Analyses of more than 140 samples of crude petroleum from oil fields of Europe and the eastern hemisphere are reported in a bulletin of the Bureau of Mines, United States Department of the Interior, just issued.

On the whole, the yield of gasoline compares favorably in quantity and quality with that from crude oils of the western hemisphere. An outstanding characteristic of the eastern hemisphere crude oils is indicated by their sulphur content and carbon residue of the residuum. These two figures indicate that most of the crude oils would be excellent for manufacture of motor fuel by cracking.

There has been a dearth of information readily available in English on the characteristics of oils produced in these fields. Accordingly, the bureau of mines undertook the collection, analysis, and study of these oils. This work was prompted by two main reasons: foreign fields are potential sources of supply for the United States (in fact, considerable quantities of some foreign oils already have been imported), and oils from many foreign fields are similar in physical and chemical properties to oils in the United States, and a study of these resemblances has scientific and commercial value. The analyses in this bulletin offer a means for judging the relative values of the foreign crude oils compared with familiar crude oils of the United States that have been analyzed by the bureau of mines method.

The bureau's analyses indicate that the gasoline content of these crude oils varies widely; some samples contain no gasoline distillate while others contain more than 80 percent distilling below 392° F. (200° C.).

Gravities of the samples also vary widely, although most of them are heavy. Only 48 of the 142 samples are lighter than 35.0° A.P.I. (specific gravity 0.850). The sulphur contents vary widely. Samples from Albania and Greece and two samples from the Ural Province of Russia contain the most sulphur. These samples average 4.9 percent of sulphur, in contrast to 37 samples that contain less than .01 percent of sulphur. The crude oils as a whole have low viscosities. Although many of the oils have relatively high pour points, the high-pour-point oils have low viscosities at 100° F., or below indicating that the oils can be transported readily by pipe line.

In addition to the individual analyses, the bulletin contains tabulations of the analyses, maps of oil fields and pipe lines of some countries, and references to articles giving additional information on the characteristics of the crude oil, the geology, or other pertinent information on the petroleum industry of each of the countries. Data on production of petroleum have been quoted from government statistics of countries for which official statistics are available.

Bureau of Mines Bulletin 401, "Properties of Typical Crude Oils from Fields of the Eastern Hemisphere," by A. J. Kraemer and E. C. Lane, which consists of 169 pages and 8 maps, is sold by the Superintendent of Documents, Washington, D. C., for 20 cents.

Trinidad production

Crude oil production in Trinidad for January amounted to 1,378,021 barrels, according to word sent The Oil Weekly by R. S. Mackilligan, inspector of mines and petroleum technologist for the government. At the rate oil was produced in Trinidad in 1937, monthly production should be around 1,291,898 barrels to sustain the total of that year during 1938. The first month's recorded recovery, however, indicates that production for 1938 will amount to 16,536,252 barrels if the current rate of production is maintained. This would represent an increase of 1,033,467 barrels over the 15,502,785 barrels produced in the colony during 1937.

OKLAHOMA FIELDS

Fitts Pool water disposal well makes oil producer.

* * *

Cement gas well has 141,933,000 cubic feet initially.

Tulsa. — Magnolia Petroleum Company's Augustanna 1, SWc NE 26-2n-7e, originally planned as a salt water disposal well for Fitts pool, Pontotoc County, went to 4070 feet in Hunton lime last week, where shows indicated an oil well instead. After acidization with 6000 gallons, the well flowed 297 barrels of oil net in two hours through casing. It was given a 350-barrel oil load. In a 4-hour test the well made 484 barrels of oil, establishing basis for a 24-hour potential of 2736 barrels of oil. Gas was estimated at 2,000,000 cubic feet. The lime was topped at 3935 feet. The well apparently cut across the fault running up the southeast edge of the field, furnishing incentive for further exploratory drilling in the area.

A dry hole for the new Ramsey area of Payne County was Helmerich & Payne et al's Ritchey 1, CNE NW 34-18n-1e, southwest of the pool proper. It found both first and second Wilcox sands dry, white and slightly salty. Top of the second sand was at 5243 feet. A core from 5348 to 5353 feet had a 4½-foot recovery of dry white sand.

Indian States Oil Company's Hickey 1, SEc NW 32-11n-4e, was abandoned at 5274 feet last week to mark the north limit of production for the Shawnee pool of Pottawatomie County. It had dry Earlsboro sand at 4455 feet and found only a slight show at 5249 feet in Hunton lime.

Reports from Hughes County stated Phillips Petroleum Company's Becker 1, NE NW SW 8-5n-10e, southwest of of Calvin, was preparing to drill plugs at 5760 feet. The well has been shut down for some time.

Stanolind Oil & Gas Company and Amerada Petroleum Corporation's Ridgway 1, NEc 24-3s-9e, two miles south of Boggy Depot in Atoka County, had Viola lime at 2650 feet and drilled to 2757 feet before cementing 8¼-inch casing at 2730 feet. A small show of oil was found in cuttings and standard tools were being rigged before drilling in.

Oklahoma City Sector

Tests were being continued at Waukomis Oil Company's Clark 1, NWc 34-21n-6w, (formerly Anderson Prichard Oil Company's) with perforations being made in the casing in the Marshall zone, a sandy dolomite from which the well is producing. It was given 60 shots from 7259 to 7271 feet and made 244 barrels of oil in 11 hours. Second set of perforations, 38 in all, were made from 7272 to 7280 feet. It was making an estimated 1,500,000 cubic feet of gas. Tubing will be run and the well acidized. The well has a good chance of becoming a flowing producer.

Southern Oklahoma

Gulf Oil Corporation continued testing at Smith Estate 1, CSW SW 26-2s-3w, in the deep Fox area of Carter County. During the last reported tests, the well made 468 barrels of oil and 114 barrels of water, production coming from Oolitic lime.

A slight show of oil was reported at Carter Oil Company's Carter-Harley 1, CNW NW 19-2s-3w, between 7685 and 7697 feet. It was drilling below 7776 feet in shale.

Another big gasser was completed in the Cement field of Caddo County. W. L. Kistler, Inc., Hedlund 1, SW NE NE 11-5n-9w, at the east side of the field, gauged 141,933,000 cubic feet of gas and was shut in for pipe line connections. It is producing from between 4976 and 5022 feet. Pressure was gauged at 2600 pounds.

A close watch was being kept on Stanolind Oil & Gas Company's Strader 1, NWC NE 8-13n-3e, Lincoln County, which was running an estimated 125 feet higher than a dry hole to the north. It was high on Mississippi lime at 4785 feet; Woodford shale at 4895 feet, and on the Hunton lime at 4945 feet, and was drilling below 5110 feet.

Tulsa.—Indications of decreased field activity continued for Oklahoma last week when 41 wells were completed while only 34 were being started. The completion list included 27 producing wells, initial output of 6723 barrels, one gas well and 13 dry holes.

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Pottawatomie County drew 8 of the locations. Other counties in the list were: Seminole, 4; Oklahoma, Okmulgee, Pontotoc and Stephens, 3 each; Creek, Osage and Tillman, 2 each; Caddo, Carter, Kay, Noble, 1 each.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO COUNTY—		
English Drlg. Co., Bruce 2, ne sw ne 11-5n-9e	75	3820
Willard Miller, Garner 3, nw sw sw 26-6n-10w	279	4478
CREEK COUNTY—		
Comail Oil Co., Coopedge 1, ne ne sw 1-15n-7e	*	3904
Sinclair Prairie, Wallace 2, sw se sw 24-18n-9e	130	3017
H. D. Daniels, Riley 2, nw sw sw ne 24-18n-10e	5	767
Sawyer, Hayden 1, n½ n½ nw nw sw 13-19n-9e	12	1313
JEFFERSON COUNTY—		
O. E. Teagarden, Penniston 2, 743 ft e of sw corner on line 16-7s-5w	18	805
OKFUSKEE COUNTY—		
Chapman, Williams 8, se sw nw 30-10n-9e	35	1780
Sun Oil Co., Simmer 1, sw sw ne 32-12n-10e	*	3740
Broswood, Lehmer 1, nw sw ne 21-13n-10e	38	2866
Detrick et al, Douglas 1, nw se sw 33-14n-11e	¶12	2590
OKMULGEE COUNTY—		
J. Smith, Berryhill 1, ne sw ne 1-14n-12e	*	2286
Royal O&G, Lewis 9, sw se se se 20-15n-14e	5	1686
Texas, D. Jefferson 10, se se nw nw sw 22-15n-14e	*	2608
OSAGE COUNTY—		
E. O. Platter, 10, nw ne se nw 13-21n-8e	5	1250
Anderson & Kerr, 1, nw nw se 20-21n-9e	*	1212
Pure Oil Co., 104, n½ ne se sw 9-23n-8e (otd 2304)	30	2399
Producers Pipe Supply Co., Pettit 11, se ne se 20-23n-8e (otd 2619) (pb 2620)	15	2760
Lewis & Phillips Pet., 5, nw se nw 9-24n-7e	177	2714
Shell, 4, ce½ e½ w½ ne 2-26n-7e	2	2594
PAYNE COUNTY—		
Mid-Continent et al, C. E. Wetzel 1, nw nw sw 18-17n-2e	1962	4812
Mid-Continent, C. E. Wetzel 1, ne ne se 13-18n-1e	1780	4788
PONTOTOC COUNTY—		
Mid-Continent, Statler 12, cn½ n½ sw 2-1n-7e	178	4052
Sinclair Prairie, McCarty 2, sw nw ne 22-2n-7e (pb 3830)	17	3915
Loval et al, H. Hardin 4-A, ne sw nw 30-2n-7e (pb 2800)	225	3720
Lake, Standridge 1, ne sw ne 26-5n-4e	*	2752
POTTAWATOMIE COUNTY—		
Magnolia, Richardson 2, sw sw sw 15-7n-4e (pb 3471)	300	4099
Magnolia, Singleterry 2, sw se sw 15-7n-4e (pb 3550)	546	4040
Prod. Inc., Milburn 1, se nw nw 15-7n-4e	*	3545
SEMINOLE COUNTY—		
Simpson & Roodhouse, Reed 1-A, nw se nw 9-6n-6e	*	2642
Malernee, Shelton 2, sw nw sw 33-7n-6e	794	2947
Sunshine O&G, Ferguson 1, se sw ne 7-7n-8e	*	4415
I.T.I.O., Livingston 8, sw nw sw 15-8n-6e (pb 4112)	12	4164
Halko & Myers, Berrio 1, se se nw 15-10n-6e	*	2116
Merva, Johnson 4, se sw ne 10-10n-8e	50	1657
STEPHENS COUNTY—		
Gulf Oil Corp., L. Sims 14, ne nw se 13-2s-4w	1	440
Duncan Pet. Corp., Gilmore 1, se se se ne 10-2s-5w	7	830
Helmerich & Payne et al, Efile 1, sw sw sw sw sw 1-2s-3w (pb 4020)	*	4246
Geo. L. Pace, Pitts 5, cn½ ne se 3-2s-8w (pb 1930)	25	2209
W. J. McAllister et al, T. L. Carpenter 1, se sw sw ne 11-2s-8w	*	2063
TILLMAN COUNTY—		
Barney Cockburn et al, Nichols 1-A, ce½ se se se 28-2s-19w (otd 3022)	*	4015

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS FIELDS

Outpost extends Kraft pool of Barton County north.

* * *

Zenith, Stafford County, gets half mile extension.

Wichita.—Drilling activity showed a decided pick-up in Kansas last week as two new pools were reported, one in McPherson and the other in Woodson County. Extensions were noted for pools in Barton, Stafford, Rice and Ellsworth counties. New and important wildcat locations were made in Sumner and Rooks counties, and a closely followed wildcat test in McPherson County was abandoned.

Pool opener for McPherson County was Darrah-Aurell and Williams' Decker 1, SWc SE 12-21s-2w, 2½ miles northwest of the Graber pool. Plugs were drilled at 3001 feet in Mississippi chat and gas estimated at 7,000,000 cubic feet blew the hole clean. It was followed by a spray of oil which steadily increased. A control head was installed and operators were moving in tanks before starting production tests.

In Woodson County, Union Oil & Royalty Company's Laidlow 1, C EL NW SW 32-25s-15e, two miles southwest of the Yates Center gas and oil pool, topped the second break in the Mississippi lime at 1397 feet and filled 240 feet with oil. Operators were preparing to acidize before testing.

Darrah, Aurell & Williams' S. Decker 1, SWC SE 12-21s-2w, 2½ miles northwest of Graber pool, McPherson County, which was hailed as a pool opened last week, drilled deeper and filled with water which killed an estimated 7,000,000 cubic feet of gas. The well had come in earlier blowing the hole clean and spraying oil. The gas flow was had after plugs were drilled at 3001 feet in the Mississippi chat. It will probably be plugged back for completion.

Shell Petroleum Corporation's Burmeister 1, SW NW SE 3-17s-11w, extended the Kraft pool of Barton County north one location, filling 2300 feet with oil from Siliceous lime between 3292 and 3312 feet. Acidized with 2000 gallons, it made a potential of 2457 barrels of oil. It is reported the highest well in the pool. Derby Petroleum Company was reported making location for Burmeister 13, SWc NE 3-17s-11w, one-quarter mile north of the new producer.

Zenith pool of Stafford County was extended one-half mile north at Stanolind Oil & Gas Company's McComb 1, SE NE SW 14-24s-11w, producing from what is called Misener sand at around 3817 feet. Top of the formation was said to be at 3812 feet, where it flowed 187 barrels of oil in 2 hours. After deepening to 3815 feet it flowed 179 barrels of oil the first hour and 101 barrels the second hour. Tubing was being run for a potential test.

A western extension of the Drach pool was assured as Stanolind Oil & Gas Company's Hahn 1, NEC NW 14-22s-13w, drilled plugs at 3763 feet and filled 3200 feet with oil in 4½ hours from Siliceous lime. Top of the lime was found at 3753 feet.

One mile northwest of production in the Stoltenberg pool of Ellsworth County, Colonial Oil Company and Phillips Petroleum Company's Hagy 1, NWc SW 16-16s-10w, was an extension well. Drilled to 3346 feet in Siliceous lime, it averaged 35 barrels of oil per hour for four hours on prelimnary tests. Acidized with 500 gallons it averaged 60 barrels per hour, making 45 gravity oil. Stanolind Pipe Line Company is laying a line to the well.

Two more tests are being started. Indian Territory Illuminating Oil Company's Boye 1, SWc NW 16-16s-10w, was a location, as was Magnolia Petroleum Company's Boye 1, SWc NW 17-16s-10w, west offset to Hagy 1.

Power Oil Company has made location for Hammond 1, CSW 34-6s-19w, 12 miles northwest of Stockton in Rooks County. It is at the northwest end of the trend extending up through Ellsworth, Rice, Barton, Russell and Ellis Counties on the Central Kansas uplift. The company assembled a block of 51,000 acres in Rooks, Norton, Graham and Phillips Counties and is reported planning five tests for the area.

Continental Oil Company's Pickerill 2, SE SW SE 13-18s-8w, one-quarter mile northeast of the Geneseo pool, Rice County, filled 3100 feet with oil from Siliceous lime at 3632 feet, extending the pool. It was preparing to test. One-quarter mile south of the same pool, Continental Oil Company's Warner 1-A, NEc NW 36-18s-8w, went to 3180 feet in Siliceous lime and filled more than 3000 feet with oil after drilling plugs. It was also preparing for a production test.

Largest oil well for Cowley County was brought in at Earl Wakefield et al's Wilson 2-A, NEc NW 4-32s-3e, in the Weathered pool, which made an official potential of 3642 barrels of oil daily. Production is from 3222 to 3241 feet in Siliceous lime. A south offset has been started.

Simpson Oil Company et al's Dick 1, NE NW NW 3-20s-11w, was scheduled to drill deeper after showing for only three barrels of oil an hour from Siliceous lime at 3316 feet. The small show followed acidization. Test is between the Ellinwood and Silica pools of Barton County.

Skelly Oil Company's Conley 2, CWL NE SW 20-27s-10w, in the Cunningham pool of Kingman County, came in last week to make 65,000,000 cubic feet of gas, the largest producer in the field. Production was from Viola lime at 3950 feet.

One and one-half miles south of Draper pool in Woodson County, Carlock et al's Diebolt 1, NE SE SW 15-24s-17e, filled 700 feet with oil from the Mississippi lime at 1197 feet. A test was being started.

A McPherson County wildcat was dry and abandoned. Test was Archer and Crane's Templin 1, NW SW SE 32-17s-3w, south of Lindsborg. It drilled to 3652 feet in Siliceous lime and showed only water. One mile west of the town, Carter Oil Company's Nelson 1, CE¼ NE SE 7-17s-3w, was drilling below 1850 feet.

Ellis County reported a possible new pool at Farrie, Duwe et al's Hadley 1, SE NE SE 12-11s-18w, north of Hays which filled 1600 feet with oil and 200 feet with water from Kansas City-Lansing lime at 3146 feet. Top of the lime was at 3045 feet. The test is 1¾ miles south of the discovery well in the Burnett pool, Section 1-11s-18w, opened last year. The water was left in the hole following a cement job which shut off water from Topeka lime.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBER COUNTY—		
Pryor & Lockhart, Brandt B-1, se se nw 7-31s-13w	*	4665
BARTON COUNTY—		
T. C. Johnson, Bitter 5, c w½ w½ sw 8-16s-13w	1120	3386
Shell, Heflin 1, nec ne 3-16s-14w	*	3388
Margheim 1, nwc nw 12-16s-14w	*	3455
Peterman A-2, nec se 13-16s-14w	*	3375
Sausen 1, sec nw 13-16s-14w	*	3486
Stanolind, Schartz B-1, sec 34-19s-11w	457	3310
Bennett et al, Stekel 2, nw sw sw 1-20s-11w	717	3283
Magnolia, Roetzel 4, sw nw ne 25-20s-11w	1097	3267
COWLEY COUNTY—		
City of Winfield, Brewer 1, sec 15-30s-4e	860	2801
ELLIS COUNTY—		
Gulf, Pearl 2, se ne se 13-11s-19w	1935	3392
Central Pet., Foster 1, c se nw 33-11s-16w	*	2465
Kerlyn Rumsey 2, se sw sw 23-11s-17w	2644	3412
Shell, Rumsey 1, nwc 23-11s-17w	2441	3427
Cities Service, Hall B-7, nw ne nw 26-11s-17w	2287	3514
GREENWOOD COUNTY—		
Anderson & Reed, Erickson 2, nw sw nw se 17-34s-13e	20	1621
McPHERSON COUNTY—		
Whan et al, Rolander 1, ne se sw 30-18s-2w	10	2334
Continental, Hetzke 10, 29-21s-1w	357	3320
RICE COUNTY—		
Empire, Zajic 1, nw ne se 11-18s-8w	1332	3229
Continental, Wood 4, swc se 12-18s-8w	2952	3247
Cities Service, Habiger 1, swc nw 18-18s-9w	*	3289
Bridgeport, Harbiger 3, nw ne nw 5-18s-10w	5008	3014
Mid Plains, Yahole 1, sw ne se 10-21s-7w	402	3386
Reserve, Heter 2, ne se ne 1-21s-8w	*	3362
RUSSELL COUNTY—		
Cities Service, Phinney 1, sec 19-14s 13w	*	3290
Sinclair Prairie, Kogg 1, nec se 29-14s-13w	760	2912
Aylward, Hall 1, nwc sw 22-14s-14w	1236	3063
Stanolind, Dartland 24, ne sw sw 5-14s-15w	278	3072
Shell, Schmidt 1, nec sw 15-14s-15w	2063	3251
Carolena, Sellens 2, c n½ nw 17-15s 13w	2115	3180
Cities Service, Krug 1, nw sw ne 13-15s-14w	949	3397
SEDGWICK COUNTY—		
Talbot, Downs 2, c se nw 32-28s-2e.	*	3464
STAFFORD COUNTY—		
Cardinal, Sittner 1, swc 4-22s-12w	10	3696
Stanolind, Hill 1, nec sw 2-23s-12w.	*	3741
SUMNER COUNTY—		
Magnolia, Lygrisse 1, c n½ ne nw 11-30s-4w	*	4409
WOODSON COUNTY—		
Sheedy et al, Klick 11, se se sw 20-25s-14e	35	1450

*Failures; †Junked; ¶Million cu. ft. gas.

NEW MEXICO

Five new tests started in Vacuum pool during week.

* * *

Wildcat 8½ miles from production has oil in hole.

Hobbs, New Mexico.—Five new tests assigned the Vacuum field last week bear out previous forecasts that this high gravity oil area is destined to set the pace on drilling in Lea County this year. Nine rotary rigs are in operation, and all but one are on locations forced by offset drainage. There are 12 flowing wells in the 4500-foot Permian lime, and they have an allowable of 62 barrels daily each.

Attempting Extensions

Outlying acreage from the Vacuum field is becoming popular with wildcatters. Repollo Oil Company has started operations on State 1-197, SE SE SE 6-17s-34e, 4-1/3 miles northwest of the Vacuum discovery. The company holds lease on 2¾ sections. Location is 1½ miles north by west of The Texas Company-Western Drilling & Engineering Company's State 1-D, which showed for a small producer of 31.5 gravity oil in pay topped at 4685 feet, with an elevation of 4107 feet. It was carried to sulphur water at 5040-83 feet, then plugged back for a nitro shot at 4680-4750 feet. Hole was abandoned April, 1931, after swabbing three barrels oil per hour. Inglefield et al's State 1, SE SE SE 4-17s-34e, two miles east of Repollo Oil Company's location, showed for a similar type of well before abandoning at 5230 feet. Isolation and low crude prices caused these two early tests to be plugged, although capable of making small producers.

8½-Mile Step-Out Shows

The Texas Company's Corbin 1, 8½ miles west by south of the Vacuum area, is carrying 700 feet oil in hole while drilling at 4525 feet, with an elevation of 3984 feet. This wildcat began showing oil at 4267 feet, and has not logged any oil pay of any consequence in the last 100 feet. Base of salt was called at 2860 feet, and top of Yates at 3030 feet. Continental Oil Company and Shell Petroleum have each started wildcats on a line between the Vacuum and Monument fields. All acreage in the trend between the two areas has been acquired by majors at fancy prices on the theory it is prospective oil land.

Two of the new projects launched at Vacuum were by The Texas Company. Work has been started on State 1-N, C SW NW 36-17s-34e, and State 1-O, C SW SW 30-17s-35e. Geo. F. Getty, Inc. made location for State 2-F, C NW NE 36-17s-34e, which will force five progressive offsets. Shell Petroleum Corporation has rigged up State 1-A, C NW NE 31-17s-35e, easternmost location. Ohio Oil Company has skidded rig to drill State-Warn 2, south offset to its recently completed large producer.

Collapsed casing has prevented a production test on Continental Oil Company et al's Marsh 1-A-31, C NE SE 31-20s-39e, wildcat near the east border of Lea County. Lime at 4136-4346 feet was shot with nitro and the 5½-inch pipe folded at 4004 feet. A swabbing test prior to the shot did not offer much encouragement for a commercial oil well, and no gas was evident.

Repollo Oil Company's Christmas 3, NW NW NE 28-22s-37e, southwest edge of the Penrose sandy-lime field, has been completed flowing 18 barrels of oil in two hours through tubing after a nitro shot at 3512-3650 feet. Little porosity was found in the pay section so the hole was carried to sulphur water at 3726 feet, then plugged back to 3664 feet. Humble Oil & Refining Company's State 2-H, C SE SW 27-22s-37e, is a new project for this field.

Well in Gap

The junction point of Eunice and Monument fields contributed an outstanding producer when Continental Oil Company et al's Reed 2-B-23, NE SE NE 23-20s-36e, flowed 59 barrels of 35 gravity oil hourly through ¾-inch choke after using 2000 gallons of acid at 3800-71 feet. Two new projects to the south involved L. E. Elliott et al's Elliott 2, NE NW SE 26-20s-36e, and Humble Oil & Refining Company's Fopeano 4, C SE SE 26-20s-36e.

North portion of the Cooper lime field contributed a new test through Repollo Oil Company having started operations on Whitten 3-B, NE SE NE 4-24s-36e.

Southwest S.A.E. section holds meeting at Tulsa

March meeting of the southwestern section, Society of Automotive Engineers, was held March 11 at the Tulsa hotel, Tulsa. Principal speaker was William S. Baker, designing engineer for Double Seal Ring Company, Fort Worth, whose subject was "Piston Rings." The talk dealt with the various types of rings, their problems and uses in different makes of engines. The session was under direction of B. E. Sibley, Continental Oil Company, Ponca City, vice president of the S.A.E., and was announced by A. V. Borque, Western Petroleum Refiners Association and secretary of the section.

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CURRY COUNTY—		
Bond Oil Corp.-L. C. Harrison, Hart 1, c nw se 13-2n-31e	*	3258
EDDY COUNTY—		
Wills et al, State 1-A, c s½ sw se 17-20s-30e	120	1476
LEA COUNTY (Eunice)—		
Continental et al, Reed 2-B-23, ne se ne 23-20s-36e	2500	3871
LEA COUNTY (Langlie)—		
Culbertson & Irwin, Humphrey 5-A, ne nw se 3-25s-37e	428	3435
LEA COUNTY (Penrose)—		
Shell, Grizzell 2, c ne se 8-22s-37e	1500	3712
Two States Oil Co. et al, Downes 2, c ne ne 6-22s-37e	250	3760
LEA COUNTY (Vacuum)—		
Ohio, State-Warn 1, c se nw 31-17s-35e	3600	4664

*Failures; †Junked; ¶Million cu. ft. gas.

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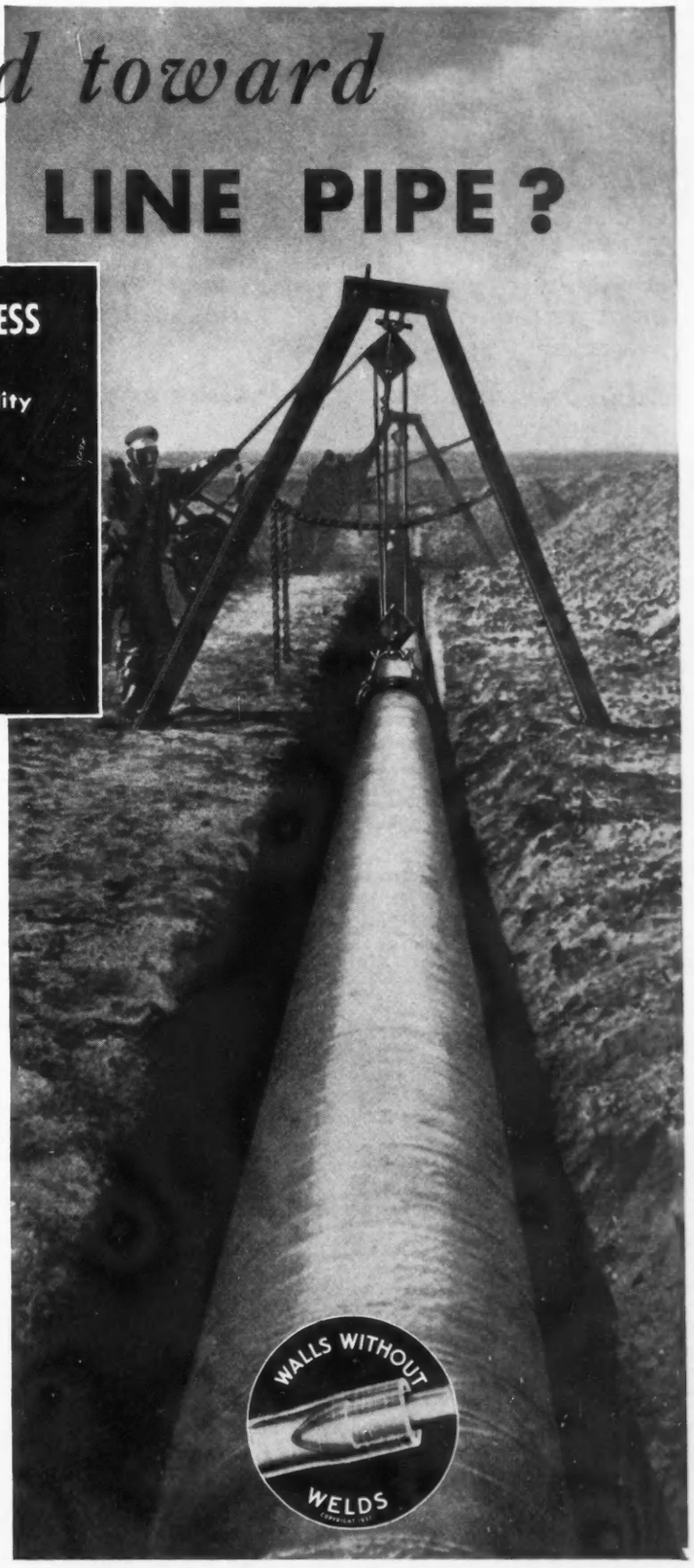

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UNITED STATES STEEL

WEST TEXAS FIELDS

Ogden field is extended 3¾ miles southwest.

* * *

Acid boosts initial rating of Wasson extension.

Midland, Texas.—Expansion of the Ogden field, Andrews County, to the southwest materialized the past week when Seaboard Oil Corporation's Munger-Nix 1, C NE PSL Section 1, Block A-41, swabbed 15 barrels oil hourly after using 3000 gallons of acid at 4526 feet. Location is 3¾ miles from production. The saturated zone, found below 4445 feet, will be acidized. The oil tests 28 gravity.

This outpost is the first try for production in the district, and is on a 5000-acre block taken with a two well drilling obligation. Rotary has been moved to drill Thornberry 1, C NE PSL Section 8, Block A-42, about 3 miles to the southeast and west of a strike between Ogden and Fuhrman fields.

Initial rating of Shell Petroleum Corporation's Baumgart 1-C, major east extension for the Yoakum County portion of the Wasson field, was boosted to 435 barrels through open tubing after using 5000 gallons of acid at 4988-5018 feet. It was previously shot with nitro. Confronted with lease expirations, the above company is starting work on Dowden 1, NEc NW Section 894, and Hensley 1, SWc NE Section 767, being southwest and northwest outposts, respectively.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Means)—		
Humble, Means 37	397	4528
CRANE COUNTY (McKnight)—		
Gulf, McKnight 3	159	6278
CRANE COUNTY (McCamey)—		
Continental, Hughes 5-C	217	2290
ECTOR COUNTY (Foster)—		
Atlantic, Johnson 4-A	766	4250
ECTOR COUNTY (Goldsmith)—		
Atlantic, Cummins 2-F	220	4282
Gulf, Goldsmith 73	1796	4195
Goldsmith 74	1600	4210
Goldsmith 75	1088	4200
Goldsmith 76	480	4210
Goldsmith 77	644	4195
Humble, Scharbauer 7-B	1292	4258
Shell, Scharbauer 3-A	377	4208
ECTOR COUNTY (Harper)—		
Barnsdall, Cowden 3	1123	4200
Mid-Continent, Cowden 3	891	4240
Shell, Cowden 8-B	715	4290
Cowden 9-B	1160	4230
ECTOR COUNTY (North Cowden)—		
Sun, Wight 3-C	420	4170
Texon O&L Co.-Group 1 Oil Corp., Midland Nat'l Bank 1	915	4336
FISHER COUNTY (Rotan)—		
Magnolia, Howard 1	294	3503
HOWARD COUNTY—		
Iron Mountain Oil Co., Snyder 4	1145	2785
Noble Drl. Co., Chalk 5	1677	3040
LAMB COUNTY—		
Wynne, Tr., Neunschwander 1	*	5503
LOVING COUNTY (Mason)—		
Michigan O&G Corp., Kyle 5	325	3965
PECOS COUNTY (Wildcat)—		
Thompson & E. R. Minshell, Michaelon 1	*	3304
UPTON COUNTY (McCamey)—		
Gulf, Shirk 16	260	2355
Humble, Ricker 11-B	328	2665
T. P. Coal & Oil Co., Lane 31-A	516	2123
WARD COUNTY—		
Gulf, Estes 81	1367	2683
Humble, Richter 30	464	2580
Richter 31	1002	2920
Waid et al. Brown 1	288	1871
WINKLER COUNTY (Henderson)—		
Humble, Walton 21-C	3000	3010
WINKLER COUNTY (Kermit)—		
Amerada, Daugherty 8-A	737	2974
Humble, Colby 12-B	316	3040
Magnolia, Walton 134	154	2913
Walton 135	845	2922
Walton 137	1647	2954
Sinclair Prairie, Vaden 6-B	495	3050
YOAKUM COUNTY (Wasson)—		
Denver Prod. & Ref. Co., Whittenburg 4	688	5055
Ohio, Fairman 1	285	5048
Shell, Baumgart 1-C	435	5018
Wynne, Tr., Fairman 1	262	5070

*Failures; †Junked; ¶Million cu. ft. gas.

First Ordovician Try

First try for Ordovician production in the upper portion of the Permian basin is underway in southwestern Andrews County. Frank S. Perkins et al's E. P. Cowden 1, C NE NW PSL Section 14, Block A-55, was drilling at 5490 feet, and is financed to make an 8000-foot test. Hole was originally carried to 5001 feet by American Liberty Oil Company, registering high structural position for the county, but the Permian was barren of production.

Gulf Oil Corporation's W. N. Waddell et al 7, about ¼-mile south of the largest Ordovician producer in the Sand Hills field, Crane County, logged base of Permian and first Simpson at 5858 feet, or 3284 feet sub sea. It is about 24 feet low on this marker. The hole was carried to 5972 feet before runing pipe to 5881 feet. A southeast extension for the Permian production in this field is to be sought by Humble Oil & Refining Company et al's J. B. Tubb 1, NWc PSL Section 14, Block 32. A large diameter hole may be carried to permit a test of the Ordovician. Sun Oil Company, Gulf Oil Corporation, American Liberty Oil Company and Peerless Oil & Royalty Company will have an interest in the test and supporting unit block.

Lou G. Stogner et al are credited with planning a wildcat along a northwest trend from the Foster field, Ector County. Location may be assigned to NW T&P Section 4, Block 43, T-2-S, about 1½ miles from production on acreage farmed out by Humble Oil & Refining Company. A bonus of $100 per acre, half cash, was paid earlier this year by Stanolind Oil & Gas Company for scattered acreage in three sections situated immediately west. Dry holes in the area afford excellent subsurface control.

Rogers and Rogers' Holt-Sun 1, prospective northeast extension for the North Cowden field and near the south line of Andrews County, was awaiting results of light nitro shot in lower pay at 4528-41 feet. Electrical formation survey established the presence of water at 4503-12 feet, between the upper and lower pay.

New shallow sand for Ivy indicated by small flow

Abilene, Texas.—New shallow oil horizon for the Ivy pool, northwestern Shackelford County, was forecast when Owens-Snebold Oil Corporation et al's O. A. Ivy 4 rated 25 barrels daily from sandy-lime at 1619-20 feet. Pipe will be set for a production test. It was slated to drill to the Canyon horizon near the 3200-foot level, which was proved for high gravity production by the above partnership last December. Their first test on the Ivy tract made 353 barrels initial after using acid in sandy-lime at 1936-38 feet in January, 1937, but this original pay proved erratic on offset locations.

Development of the Ellenberger lime zone in northwestern Eastland County gained encouragement when Lone Star Gas Company's M. Thomas 1, near C NE SE S. P. Section 478, flowed 376 barrels natural at 4120-56 feet. It has an elevation of 1613 feet, and is a west offset to the discovery of the deep zone. Ellenberger is the deepest producnig horizon in the district, but is inconsistent and comparatively few completions have been profitable. However, occasionally an outstanding producer is recorded.

Change West Texas gas/oil ratio allowances

Austin.—The Texas Railroad Commission has revised its gas/oil ratio allowances for six West Texas fields, effective March 1.

The North Cowden field gas/oil ratio allowance has ben reduced from 5000 to 1 to 3500 to 1. Goldsmith has been cut from 6000 to 5000 to 1. Kermit has been reduced from 3500 to 3000 to 1. North Ward has been reduced from 5500 to 5000 to 1. South Ward has been reduced from 5500 to 5000 to 1, and the Furhman ratio has been increased from 2000 to 1 to 5000 to 1.

At the same time the commission announced that quarterly gas/oil ratio reports must be made on all wells in the area which are now operating with a ratio in excess of 2000 to 1. Reports from Winkler County fields must begin on March 31. On April 30 Ward County fields shall begin reporting. Reports must begin on May 31 for fields in Gaines, Yoakum, Cochran, Andrews and Hockley Counties. Ector County reports are to begin on June 30. Loving and Pecos County reports shall begin on July 31, and reports from Crane and Upton Counties must begin on August 31.

NORTH TEXAS FIELDS

K-M-A deep field continues to register growth.

* * *

Outpost prospecting exacting big toll of failures.

* * *

Strawn saturation in wildcat indicates new field.

Wichita Falls, Texas.—Development of the K-M-A deep field continues to register a healthy growth, but prospecting on outlying blocks is exacting a big toll of failures. North central Archer County gives promise of a new Strawn producing area as result of good saturation found by a wildcat about midway the K-M-A and Chalk Hill Strawn production. A probable dry hole within the productive limits of the K-M-A field aroused considerable comment as operators have taken it for granted that under favorable structural conditions production can be anticipated from all inside locations. Two previous exceptions were situated a short distance northwest of the discovery well.

Deep drilling in central Wichita County and north of the K-M-A field added another failure when Tom B. Medders et al's Mrs. Edith Fields 1, SW SW NE H&GN Ry. Section 32, A-415, four miles northwest of Iowa Park, tested dry at 4104 feet, then fulfilled 4500-foot depth contract. Top of lime was logged at 3595 feet, with an elevation of 1079 feet. King Oil Company et al's Burnett 1-A, W. W. Carroll Survey, A-434, was abandoned a few weeks previously in Ellenberger at 4160-4250 feet, with an elevation of 1062 feet. Roy H. King and Frabor-Hughes Company's J. N. George 1, O. Farish Survey, A-383, five miles southwest of Burkburnett, has been dropped as a failure in schist at 3394 feet. Operations were suspended at this depth early in February. It has an elevation of 1036 feet.

Wildcat to Test

V. A. Huff, Bert Ligon et al's C. F. Collins 1, J. T. Tyler Survey, A-568, four miles west of Wichita Falls, was slated to drill plugs and test late last week. This wildcat recovered thin oil saturated sandy-lime in core pulled at 4308-18 feet, then cemented pipe at 4285 feet. A minor show at 4232-36 feet did not warrant testing. Top of lime was called at 4162 feet, with an elevation of 1015 feet.

Dry Hole in K-M-A

Completion of a dry hole within the productive limits of the north portion of the K-M-A field provided a surprise development. This failure was credited to Gem Oil Company's Waggoner Bros. 1, one location south of the center of the north line of Block 1, M. A. Willis Survey, A-548, 2-1/3 miles north by west of the discovery, after drilling to 4001 feet. The Strawn section, topped at 3662 feet with an elevation of 1042 feet, was mostly tight lime and shale. Structural position compares favorably with nearby flowing producers. Plugging orders have not been issued, as pipe may be run for the nitro shot.

Major extension for the west portion of the field loomed probable when D. H. Bolin and Jim O. Whittington's Waggoner Bros. 1, SE SE SW H&TC Section 21, Block 7, cored saturated lime at 3845-50 feet. Top of lime was logged at 3840 feet, with an elevation of 1075 feet. This outpost is 2¾ miles northwest of Consolidated Oil Company et al's Ferguson 4, recent large completion, but is 150 feet lower structurally on the lime marker than the latter.

Water in Ellenberger

Clark & Cowden Drilling Corporation and Southwood Oil Company's W. T. Waggoner 1, near south line of A. Gibson Survey, A-455 and 2¼ miles southwest of the most northwesterly producer in the K-M-A Strawn zone, encountered water in Ellenberger topped at 3757 feet. This semi-wildcat logged about 18 feet of oil saturation below 3636 feet, and will plug back from 3779 feet and test after pipe is landed. Top of lime was called at 3420 feet, with an elevation of 1116 feet. High structural position is due to location being on the southwest flank of the Electra arch.

Wilbarger County's only contender for a share in the Strawn production failed to show oil or water when given production test through casing. Lloyd H. Brown et al's W. T. Waggoner 1, SE NW SE H&TC Section 33, Block 6, about six miles west of the prolific Kadane sand zone, was slated to deepen after proving dry in slightly saturated formation cored mid-February at 4087-95 feet. Top of lime was called at 3999 feet, with an elevation of 1139 feet, or 74 feet lower on this marker than a salt water well near the southwest corner of Wichita County.

Southwest Outpost Fails

Appearance of salt water with small show of oil at 3987 feet in Lewis Production Company's W. C. Frey 1, Block 17, Palo Pinto County School Lands, northwestern Archer County, forecasted a failure. It is located 2-1/3 miles southwest of nearest K-M-A deep production, and in logging top of lime at 3826 feet, with an elevation of 1071 feet, established a low structural position.

Intermediate acreage on a direct line between the K-M-A deep field and several small producers in the same horizon drilled some years ago in the Chalk Hill field, Archer County, commanded attention the past week when a wildcat yielded oil saturated cores from the Strawn. L. V. Hull, W. W. Silk and Helmerick & Payne, Inc.'s L. F. Wilson 1, NWc SE Section 25, A.T.N.C. Lands, logged adequate saturation in Strawn at 3841-58 feet, with an eleva-

NORTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Fraser et al, Kinder 1-B, sec 70....	*	1365
A. A. Horwitz & McDaniel, Benson 10, sec 1808	83	942
Wayne King et al, Threet 1, blk 105	*	1201
Theimer et al, Weinzapfel 1, sec 1..	*	1070
Westmount Oil Co., Dempsey 7, blk 10	*	1818
CLAY COUNTY—		
Metzner & Burns, Taylor 7, blk 23..	300	1110
Taylor 8, blk 23.....	280	1107
Taylor 9, blk 23	260	1106
Sussex Oil Corp., Shumake 10, sec 3	*	419
COOKE COUNTY—		
Kingery Bros. et al, Johnson 4.....	307	1207
Pace et al, Aldridge 15	75	1215
Schermerhorn Oil Co., Kessler 12..	25	1317
Spradlin et al, Andress 1	5	865
GRAYSON COUNTY—		
Scrivner et al, Brown 1	*	2602
JACK COUNTY—		
Barney Cockburn Oil Co., Mantooth 2	240	3243
R. D. Compton Oil Co., Henderson 16, blk 2	75	335
Gilmore et al, Gillespie 2, sec 2.....	*	591
Hamilton Pet. Co., J. S. Rhodes 6..	200	2364
Hill & Hill, Kuykendall 1	800	3121
T. B. Jones-R. A. Conklin, Hefner 1	*	3516
Mullendore, Berry & Berry, Clayton 10-B	325	3167
Perrin et al, Rhodes 1	1100	3214
MONTAGUE COUNTY—		
Sinclair Prairie et al, Holt 23, sec 45	35	1674
WICHITA COUNTY (K-M-A)—		
Burns et al, First Nat'l Co. 25, blk 27	850	3850
J. A. Chapman-Ed. McFarlin, Waggoner Bros. 1-B, lot 19.....	512	3771
Christie-Hickman Drl. Co., Bolding-Lowry 4, blk 23	768	3816
Consolidated Oil Co. et al, Ferguson 4, lot 5	4065	3810
Grace & Woods, Hodges 3.....	720	3906
Heyser-Heard & Clardy, Inc., Fassett-Tuttle 1, sec 3	75	4008
Lewis Prod. Co., Wichita Nat'l Bank 2	992	3770
Wichita Nat'l Bank 3	1200	3761
Wichita Nat'l Bank 4	784	3820
Mul-Berry Oil Co., Bradley 1.....	1000	3813
Rathke Oil Co. et al, Burnett-Gulf 1-A, sec 4	25	3739
WICHITA COUNTY—		
Brashear Drl. Co., Waggoner 4, sec 148	9	734
Kellar et al, Dale-Clark 2, sec 13....	*	882
Roy H. King & Frabor-Hodges Co., George 1	*	3394
Medders et al, Waggoner 2-B, sec 13	*	1070
Pois & Schultz, Foster 5, sec 1....	145	1263
WILBARGER COUNTY—		
Paradise Oil Co., Waggoner 2-A, sec 45	125	1891
YOUNG COUNTY—		
Burns et al, M. Foehr 1-A, sec 222	21	990
M. Foehr 2-A, sec 222.....	*	970
Collins et al, Dyer 1	5	582
Peters et al, Hunt 1, sec 176.....	15	1072
Sweeney et al, Duncan 1, sec 1437..	*	940
Walker et al, Bullock 1, sec 419...	*	512
Zweifel et al, The Aller Co. 2, sec 3409	*	3175

*Failures; †Junked; ¶Million cu. ft. gas.

tion of 1034 feet, to warrant the landing of pipe for a production test. It is seven miles northwest of deep production at Chalk Hill, and considerably lower on structure. Location is about nine miles southeast of the most southeasterly producer in the K-M-A area and compares favorably on sub sea. Strawn zone at Chalk Hill is not considered commercial.

80 Being Completed

Rotary drilling time between the surface pipe and oil string is being speeded up out of proportion to the drilling in and final completion work. This accounts for the fact that current field report lists 80 tests in process of completion or with 7-inch pipe landed, and only 37 rotaries making hole between the casing points. Addition of 28 new locations on the last weekly tabulation boosted total operations to 203. These include 44 locations; 22 derricks and rigs; 2 inactive tests; and 18 tests with surface pipe landed, besides active operations mentioned above. Volume of completions should range from 10 to 15 per week for the next few months.

Diversion of interest and operating funds has materially reduced shallow drilling throughout the district. Individuals and companies that normally carry on a continuous shallow prospecting find that their efforts and financial resources are occupied with proved locations in the deep field. Due to the close proximity of shallow pools and fields in Wichita, Archer and north Young County, wildcatting largely consisted of elimination drilling, or the spotting of tests between dry holes or production. Any undrilled tract in a greater portion of the above counties is rated as a fair prospect, although such explorations exact a heavy quota of dry holes.

Seaboard sells Pottsville wells to Lone Star Gas

Ranger, Texas.—Lone Star Gas Company has purchased Seaboard Oil Corporation's two gassers on the Pottsville structure, Hamilton County, with about 10,000 acres of surrounding leases, and has built about 10 miles of line to tie into its system at Hamilton, Texas. Seaboard Oil Corporation proved the Pottsville area for prolific gas in Marble Falls lime near the 2500-foot level in 1936, and carried the second test to 5345 feet, or 2355 feet into the Ellenberger with negative results. Explorations were terminated after an unsuccessful effort to develop a market for the high pressure gas production.

Kansas University gets petroleum scholarship

The George J. Spang Memorial Fellowship has been established in our Department of Petroleum Engineering by Spang and Company of Butler, Pennsylvania, for the academic year 1938-39. This fellowship carries an award of six hundred dollars and the research work involved will be under the direction of Dr. Eugene A. Stephenson, the chairman of the department. In making the selection of the candidate, preference will be given to graduate students but applications will be considered from undergraduates suitably qualified by training and experience.

EAST TEXAS

Limestone County test stops at greatest depth for area.

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Showings give Talco flank deep test small chance for well.

Tyler, Texas.—Operations on Stanolind Oil & Gas Company and Ramsey Petroleum Corporation's Norris 1, Thornton Fault area, Limestone County, were halted March 10 in conglomerate at 9951½ feet after penetrating the East Texas basin geological section to a greater depth than any previous test. Owners plan to plug back and try for production in the Reynolds or Smackover lime, Lower Marine, Travis Peak and Lower Glen Rose after perforating 7-inch, which was cemented at 8740 feet. These sub-Trinity formations showed nominal porosity.

Presence of 790 feet of salt section, topped at 8995 feet by Norris 1, gives rise to the belief that salt beds underlie the basin. A 60-foot section of anhydrite was found below the salt, and first conglomerate was logged at 9845 feet, followed by sandstone, then conglomerate to the bottom of the hole.

The depth record for the district is held by Tide Water Oil Company and Seaboard Oil Corporation's Monnig 7, Long Lake field, which was abandoned in Travis Peak at 9971 feet.

Tom Hunter, American Liberty Oil Company, et al, have financed the deepening of Carter 1, Kelsey dome, Upshur County, to 400 feet into the Lower Marine section. It was drilling in Travis Peak at 7940 feet.

Ajo Oil Corporation's Sanders 1, deep test for the north edge of Talco field, Franklin County, was coring in Travis Peak at 5880 feet. Appearance of salt water in Lower Glen Rose at 5456-75 feet clouded the chances of this test scoring deep production.

Completion of a third producer for the Flag Lake faulted area northwestern Henderson County, was forecast by Dearman, McMillan and Hunt's Dowdy 2, east offset to the discovery, after showing oil saturation in coring to 3091½ feet. Pipe will be set at 3086 feet. Cores indicated a comparatively thin body of oil sand.

Austin.—A hearing on gas/oil ratios in the Rodessa field, Cass and Marion Counties, will be held immediately after the state-wide proration hearing called for March 19.

The commission recently increased the gas/oil ratio allowance in the field from 2000/1 to 500/1. Protests against the increases have been received and it is expected that evidence will be presented at the hearing to show that the ratios now in effect are excessive.

Canadian engineers meeting to stress oil exploration

Oil exploration and development, for years treated as the step-child in activities of the Canadian Institute of Mining & Metallurgy, will be subject of increased attention during the organization's thirty-ninth annual meeting in the Royal York Hotel in Toronto March 14-16.

Leading discussions on the oil industry will be Dr. G. S. Hume, of the Dominion Department of Lands and Mines, who will present a paper on "Turner Valley." Dr. Hume's paper will be presented during the geology and exploration session Wednesday morning.

Other papers to be presented during this session, several of which will touch upon the petroleum industry, are: "Alberta in '37," by A. A. Millar; "British Columbia in '37," by J. F. Walker; "Aerial Surveying," by W. H. Boyd; "Crow River Area," by J. E. Thomson, and "Deep Oxidation in Canadian Shield," by E. S. Moore.

As in former years, the bulk of the convention program will be devoted to mining, metallurgy and milling, with emphasis placed on the precious metal, gold.

C. E. MacDonald is chairman of the general committee in charge of the meeting, and is assisted by W. B. Airth, vice chairman, and L. A. Howard, secretary.

TEXAS PANHANDLE AREA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Danciger, Block 4	244	3155
GRAY COUNTY—		
Shell, Hughey-Texwell 3	748	3246
HUTCHINSON COUNTY—		
Alma Oil Co., Whittenburg 2-D	527	3018
Holmes et al, Lyall 3	344	2705
Seaboard, Whittenburg 4	401	2699
Shell, Wisdom 4	751	3167
MOORE COUNTY—		
Phillips, Shellburg 1	¶6.8	3465
Shamrock O&G Corp., Kelly 1	¶47½	3350
WHEELER COUNTY—		
DuMar O&G Co., Bradley 1	¶4.2	2001

*Failures; †Junked; ¶Million cu. ft. gas.

EAST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Fischer et al, Eaton (consolidated) 2 (1-ac)	5500	3752
Eaton 15-B (21.52-ac)	5300	3754
Eaton 23-B (21.52-ac)	5000	3761
Fox & Butler, Thrash 7 (14-ac)	2000	3720
Gulf, Thrash 17 (83.56-ac)	6800	3730
Humble, Box 24 (165.72-ac)	9500	3750
Silvey 60-A (460½-ac)	9000	3728
Luttes et al, Alford 5 (41.9-ac)	960	3834
Alford 6 (41.9-ac)	1000	3835
Ohio, Burton 30, Acct. 1 (254.44-ac)	3600	3700
Oklahoma-Texas Trust Co., Neal 6 (1.6-ac)	7000	3755
Pine Pet. Co., Giles 10 (30.44-ac)	4500	3689
Ward Oil Corp., Thrash 40 (200-ac)	3500	3810
KILGORE AREA—		
Atlantic, Clayton 8 (40-ac)	6000	3594
L. P. Griffin 19 (85.88-ac)	6500	3672
Clark et al, Benson 2 (4-ac)	3000	3667
Cooper et al, Compton 4 (1.43-ac)	600	3538
Compton 6 (1.43-ac)	600	3537
Gen'l American Oil Co., Gill-Shell 9 (57.69-ac)	6000	3634
Gulf, Goyne 7 (30½-ac)	8500	3595
Henry Oil Co., Laird 11 (8-ac)	4600	3560
Houston Oil Co., Hughey 6-A (40 ac)	8000	3483
Humble, Laird 93-B (568.53-ac)	3600	3651
Magnolia, Bradberry 16 (90-ac)	5300	3621
McCullough, Rec., Nat'l Oil Co., L. Martin 8 (20-ac)	4000	3706
Overton Ref. Co., Crane 2, blk 139	600	3534
Patrick Prod. Co., Watson 3-B (10-ac)	7800	3670
Plummer et al, Beall 9 (79-ac)	3200	3705
Beall 11 (79-ac)	3000	3718
Sun, Hilburn-Loyd 37 (133.7-ac)	4300	3622
United E&W Oil Co. et al, Benson 2 (47-ac)	600	3662
Fox Wood & Penn Oil Co., Morse 4 (6-ac)	4500	3655
LONGVIEW AREA—		
Arkansas FO Co., Snoddy 11 (50.98-ac)	5600	3604
Day & Co., Victory 4 (12-ac)	2400	3608
Fain-McGaha Oil Corp., R. Corbin 9 (40-ac)	9000	3577
Humble, Hughes 47 (245.6-ac)	6300	3623
Hughes 48 (245.6-ac)	5500	3605
Kewanee Oil Co., Adams-Barton 7 (33.93-ac)	8800	3581
Magnolia, Everett 33 (166.96-ac)	7800	3650
Jones 21 (116¼-ac)	9200	3685
Margay Oil Corp., Christian 8-A (16-ac)	8600	3681
Pewitt et al, Williford 21 (133-ac)	750	3655
Shell, Akin 18 (100-ac)	9200	3635
Akin 19 (100-ac)	9000	3618
Sinclair Prairie, Akin 21-B (100-ac)	9600	3686
Akin 23-B (100-ac)	8500	3675
Moncrief 55 (307.7-ac)	10,000	3700
Stanolind, Rodden 12 (80.9-ac)	1200	3579
Sun, O'Byrne 22 (310-ac)	500	3682
Tide Water Associated, Sheppard 20 (114.36-ac)	8800	3648
ANDERSON COUNTY (Long Lake)—		
F-H-E Oil Co., Brantley 1 (20-ac)	¶115	5338
Tide Water Associated-Seaboard, Shaw-Cern 8 (1216-ac)	250	5333
ANGELINA COUNTY—		
Gar-Flo Oil Co., Russell 1	*	2380
TITUS COUNTY (Talco)—		
Humble, Pan-American Life 5 (79.56-ac)	361	4297
L. Stevenson 4 (88.1-ac)	72	4304
CHEROKEE COUNTY—		
Lide, Greer & American Liberty Oil Co., S. L. Tankersley 1 (131-ac)	*	5062
HENDERSON COUNTY—		
LaRue et al, Breedlove-Mills 1, (232½-ac)	*	3103
NAVARRO COUNTY—		
L. G. Orchard & A. G. W. Biddle, Gibson 1	*	3809
CASS COUNTY (Rodessa)—		
Union Prod. Co., Bauguss 5, Robt. Trammell sur	167	6007
Vaughn Prod. Co., Ryley 1, J. Taylor sur	*	6290
MARION COUNTY (Jefferson)—		
Gulf, Henderson A-3, R. Bennington sur	530	6036

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHWEST TEXAS

Mirando district adds two new sands; third possible.

* * *

Several new sands uncovered in Nueces County.

Laredo.—Mirando District added two new producing horizons in present oil fields, had a third in the making, and a new field possible to indicate another hot play for this shallow trend. At the same time, a new wildcatting program on the Benavides trend is underway which may lead to the opening of new Cockfield sand production.

Donald P. Kenyon's S. Benavides 1, Block 18, M. E. Hale sub-division of the Mariano Arispe Grant at the south end of the Cole Bruni field, Webb County, tested salt water in the regular Bruni sand and was plugged back for completion through perforations 3270-80 feet. The test flowed 136 barrels of 36.2 gravity crude in 24 hours through 3/16-inch choke, showing a working pressure of 900 pounds. It had the regular sand at 3419-44 feet with 5-inch casing being set at 3444 feet. Production is from the Yegua.

A new and deeper sand, likely in the Cockfield, was proved when Burt C. Calvin's Rufino Lopez 1, in the Mirando Valley field, Zapata County, flowed 150 barrels of 23 gravity oil per day by heads from sand 1873-81 feet. This sand likely corresponds to the production in the O'Hern sector of the Cole field, where Magnolia Petroleum Company opened 2800-foot production several years ago.

Killam-Oilton Sand

In Webb County, O. W. Killam and Campbell's E. M. Thompson (Wher) 5 was completing in the Rosenberg or Cockfield sand at 2473-82 feet, where 40 feet of oil and drilling mud were recovered on drill stem test. The well is in the Killam-Oilton district, where production ranges from 1900 to 2000 feet in the Mirando sand. This well, in Block 11, Section 1005, is the first in the main field to be carried to the lower level. One well, about 1½ miles north of the field, made a gasser in the same sand, while another on the west side of the field showed a little oil and could not be completed as a commercial producer.

W. S. Hill et al's Mabel Adami 1, SW SW Section 345, in the northeast corner of Webb County, cored sand with oil and gas odor at 1012-17 feet and dry sand to 1020 feet. First drill stem test failed and a second was run with side wall packer, but the results of the test are not available. This well is in the vicinity of several other tests which have showed oil and gas, but thus far none has shown sufficient on a production test to warrant completion.

P. T. Wright et al's J. F. Hyatt 1 is a key new location in SE NW Section 6 of the Sweden Farms, about two miles west of North Sweden production. From geophysical and geological work done in the area, it is in the center of a most interesting area which may result in the extension of North Sweden. On the same trend, but several miles to the northeast, three wells are drilling in wildcat territory on important shooting pictures.

Willacy County deep test setting 9641 feet of pipe

Mission.—Magnolia Petroleum Company was reaming 11¾-inch hole below 7000 feet preparatory to setting 8⅝-inch casing at 9641 feet in F. Armendiaz 1, deep wildcat in Willacy County. The well, in Share 4, south of Raymondville, is projected to 11,000 feet or deeper in the Vicksburg.

A second deep test in the county is Sal Viejo Oil Company's Garcia Land & Cattle Company 2, which is making hole below 7000 feet.

D. Davenport's wild well in La Blanca field, Hidalgo County, after running wild and burning since January 9, again is under control and efforts are being made to close it in and install equipment to again place it on production. The well in blowing out caused a second well a few feet away also to run wild and both cratered. It is expected that as soon as the test is definitely closed in, the string of casing will be cemented and oil production resumed

Wildcat west of Lagarto may complete in Yegua

Beeville.—James B. Chew and Hantho-Nelson, Incorporated's A. McNeill Bell 1 again revived hope for a new field in southern Live Oak County as the well flowed wash water, a litle oil and considerable gas apparently from several sands between casing seat at 5058 feet and total depth of 5290 feet.

The test, located in the A. Parks survey, seven miles west of Lagarto, several days ago attempted completion at 5058-76 feet, but a commercial producer could not be developed. It was then cored to 5097 feet with poor recovery, but several streaks of sand with oil odor were picked up. Another sand section with odor was encountered 5155-95 feet, all being cored. A core between 5235-45 feet recovered only four feet, which was sand and shale with an oil odor. Drilled to 5285 feet, the hole cut like sandy material. A core from 5285-90 feet recovered two feet of sand in bottom, which was salt water. The first sand is in the Pettus, while the remainder are in the Yegua.

Liner was set on bottom and ce-

mented, but it is apparent that a bad cement job was obtained, for the well started flowing wash water after tubing had been run to within 600 feet of bottom. Closed in, tubing pressure built up to 740 pounds. Opened the well headed and made a small amount of oil, some salt water and drilling fluid with gas. The liner has been recemented and will be perforated in the Yegua sands for a production test.

Dearth of permits in East Texas field

Austin.—The Texas Railroad Commission last week approved permits for drilling 170 new wells in Texas, 193 less than were granted the week before.

One permit was granted in the East Texas field in Upshur County, while East Central Texas operators reported 15 new locations.

There were 48 new locations reported by West Texas operators, including 16 in Ector County. Sixteen permits were approved in West Central Texas.

Operators in the Gulf Coast area were granted 34 permits, while Southwest Texas operators reported 29.

Permits for drilling 15 new wells were approved in the North Texas area, including 10 in Young County. Panhandle operators reported 12 locations.

Record String 16-inch Casing Forecasts Deep South Texas Test

By EARL S. POST, Staff Writer

SETTING a world's record for the longest string of 16-inch casing, Union Producing Company contemplates exploration of levels between 12,000 and 15,000 feet in its Minnie Brown 1 in the Agua Dulce field of Nueces County, where the company has developed one of the largest structures in South Texas.

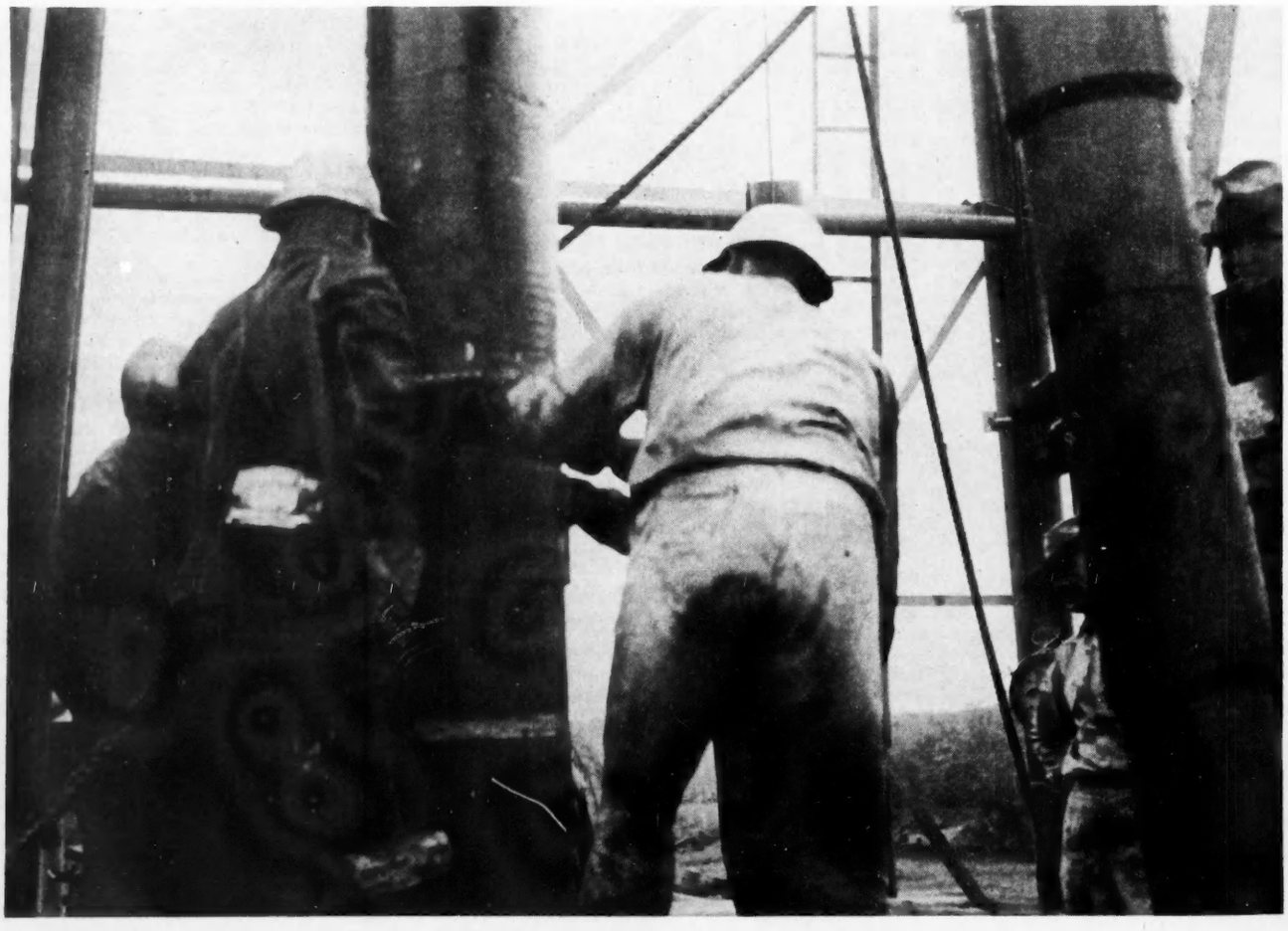
The well is projected to formations heretofore untested along this trend to the South Texas Gulf Coast. While no definite information is available, it is possible that it will drill the greater part of the Tertiary formation.

Minnie Brown 1 on March 9 was waiting on cement at 4225 feet, where a string of 16-inch casing had been landed on bottom and cemented with 1500 sacks, two cementing trucks being required to do the job. The pipe, weighing 84 pounds to the foot, weighed a total of 353,900 pounds and was run and cemented in 25 hours. The 16-inch pipe is the customary conductor string in this field, but is usually set to depths of 150 to 350 feet.

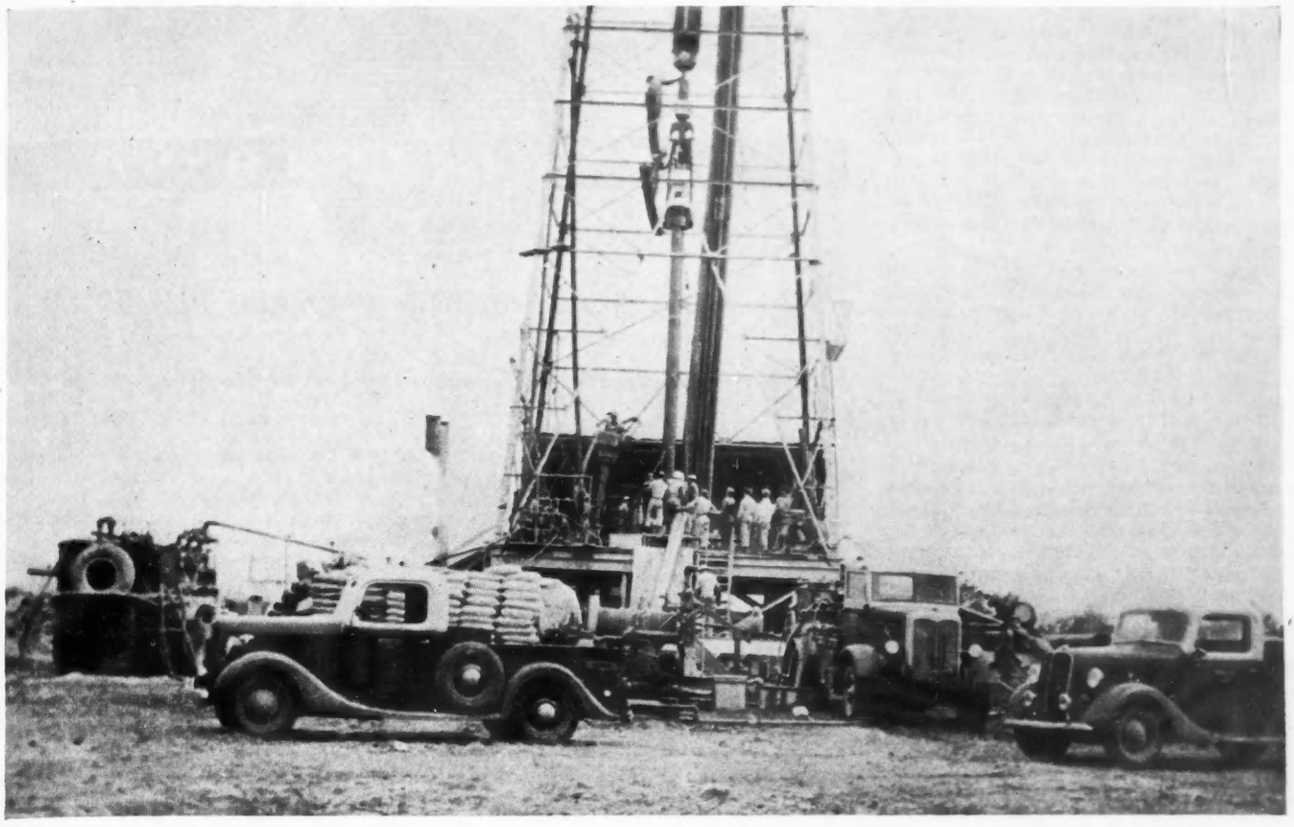
The fate of the Minnie Brown depends entirely on formation conditions. Heaving shale, high gas pressure, sloughing formations and numerous other elements which have hindered other operations in the general area could prevent the well from successfully reaching the expected bottom. The initial contract, however, is to 12,000 feet, but it may be carried deeper.

This proposed record test is located 1500 feet from the west line and 1775 feet from the north line of Section 87 of the George H. Pauls B Subdivision of the Driscoll Ranch, Andres Fernandes de la Fuentes Survey, Abstract 311. It is a diagonal offset to the company's Schroeder 1, another deep test at the north end of the Agua Dulce field.

Union Producing Company has been carrying on an aggressive deep ex-



The crew on Union Producing Company's Minnie Brown 1, Agua Dulce field, Nueces County, required only 25 hours to run in and cement 4225 feet of 16-inch pipe—a record for that length in a hole.



Union Producing Company's Minnie Brown 1, Agua Dulce field, Nueces County, when cement was being set on 4225 feet of 16-inch casing.

ploratory program in the Agua Dulce field for months. It has definitely determined the possibilities of numerous sands between 6500 and 8500 feet with wells drilled already. The structure, however, is indicated as a possible deep seated salt dome of major proportions, or a huge elongated dome. This gives rise to the possibilities of the area in other sands in the Vicksburg, Jackson, Yegua, Cook Mountain and even lower providing commercial production. The findings in this test, therefore, will be of great importance to the South Texas Gulf Coast. Although this trend has been unusually active in drilling of deep wells, very few have been carried sufficiently deep to test the Vicksburg, much less some of the lower zones. In spite of this lack of development of the lower zones reserves have been steadily mounting.

Special Casing

Minnie Brown, as well as being an important geological operation, gives rise to many key engineering features. All the casing thus far used in the hole has been especially designed for the specific operation. The rig, likewise, is a special set-up for this individual well. It is said to be the largest heavy-duty drilling machine ever assembled in this region. It consists of a 10-inch draw works, 14 by 14 inch engine used only on the draw works. The shale shaker and mud centrifuge is so constructed to handle a heavy operation.

The rotary on this test is powered by a direct drive from a separate vertical steam engine, further increasing flexibility in operation. The derrick is 136 feet high and relegged. It has a 36-foot base. All power units, safety devices, etc., have been either specially designed or specifically selected for this individual test.

The casing program is an ambitious one. The hole was drilled with a diameter of 26 inches to 450 feet. A string of 21½-inch surface casing then was landed at 299 feet. This string is believed to be the record for size and depth, although definite information is not available. The 16-inch then was set at 4225 feet. The next string will be 10¾-inch 55½-pound o.d. casing, which will be landed around 8800 feet, another world record. This string will weigh 488,400 pounds. The hole will be 15 inches in diameter to 8800 feet, where the record string will be set. Incidentally, the common practice in South Texas is to set from 500 to 1500 feet of 10¾-inch casing for surface casing on deep operations, so the 8800-foot job may be termed as the surface casing. No data is available on the next string, which likely will be 7⅝-inch set somewhere around 12,000 feet. If this be the case, another 500,000 pounds of casing will be required. A producing string near 15,000 feet, if the operation be a success would bring the total amount of pipe in the hole to close to 2,000,000 pounds or 1000 tons—another record for casing.

It remains to be seen—but Minnie Brown undoubtedly will uncover many important engineering and geological features in drilling to a record depth.

Turkey Creek extension flows 125 barrels a day

Corpus Christi.—Turkey Creek, Nueces County, had its 2800-foot southeast extension definitely proved with an oil producer, while testing was under way on discovery wells of new sands in the Luby, South Clara Driscoll and Placedo-Keeran areas.

C. Andrade III's John Dunn 1, E. Hinojosa Survey No. 422, was flowing at the rate of 125 barrels of oil per day through 9/64-inch choke, showing pressures of 850 pounds on tubing and 1150 pounds on casing. The test is producing from perforations in the Douglas sand at 5814-22 feet where 20 shots were made. This well gives the Turkey Creek a brighter outlook for considerable producing area to the east of present production.

Seaboard Oil Corporation of Delaware's J. P. Luby 13, in the Luby field, Nueces County, drilled to 5721 feet, casing being set on bottom. It found an oil sand from 5697-5721 feet, which showed sufficiently on drill-stem tests to assure commercial production. Completion, however, is expected to be effected in a regular sand rather than the new reserve level. The test showed 810 feet of 43 gravity oil and 190 pounds pressure on a drill-stem test from 5692-5706 feet.

Several New Sands

Wellington Oil Company and Seaboard Oil Corporation's L. M. Dugger 2, in the South Clara Driscoll field, also in Nueces County, was drilling plugs to complete after casing was landed on bottom at 5505 feet. It showed for a commercial producer at several levels, all new for the field.

Jim Wells County comes in for an

extensive wiidcatting program along the Alfred trend. Rowan and Hope, Incorporated's Adams 1, southwest offset to the discovery, logged the sand at 3215½-20½ feet and drilled to 3252 feet, where five-inch casing was landed. It is being completed through perforations. One other well is active and several locations have been made in the pool. Along trend, several drilling deals have been concluded for immediate operations.

Jackson County has an interesting deep test, being Magnolia Petroleum Company's A. West 1, Musquiz Survey, about five miles south of Vanderbilt. The well is progressing below 8000 feet, having passed through several showings. It had the top of the Frio at 5325 feet and will be carried into the Vicksburg.

Stanolind Oil & Gas Company is preparing to complete J. V. Vandenberge et al 1, E. Benavides Survey, Victoria County, which likely will extend the production recently opened by this concern about 2900 feet to the southeast. Henderson & Pickering 1, completed last year, is between the Placedo and Keeran fields and indicated a connection of the areas. The new test is bottomed at 6510 feet, with casing set about 6400 feet. It will test several sands through perforations.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CALDWELL COUNTY—		
Banks Miller, Martindale 1, sur 18	*	1620
Byrd, Parr 1, Hinds sur.	*	1005
Compton, Johnson 1 (Branyon)	100	2024
Lanning & Coffield, Withers 2 (Ne Luling)	25	2251
Martell, Conley 9 (Salt Flats)	42	2672
Taylor, Dorn 1 (Luling)	240	2105
GUADALUPE COUNTY—		
Diamond Half, Miller E-2 (Darst Creek)	50	2615
Edes, Harborth 1, Thomas sur.	*	100
KENDALL COUNTY—		
Landon & Holifield, Sidensticker 1, Rodriguez sur	*	908
TRAVIS COUNTY—		
Mills, Washington 1, Navarros gr.	*	1198
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Atlantic, Porterfield B-12 (McCampbell) (pb/td 6977)	375	7259
Baltic, Conn & Brown 2 (McCampbell)	450	7200
Tusca, Brown 2 (McCampbell)	*	7135
HIDALGO COUNTY—		
Harrison, Guerra 1 (Samfordyce) (perf 2844½-55)	25	3085
JIM WELLS COUNTY—		
Hill, Kuether 1, Haldeman subd	*	3344
KLEBERG COUNTY—		
Clark-Stilzig, Kivlin 3 (Kingsville)	*	2605
NUECES COUNTY—		
Andrade, Dunn 1 (Turkey Creek)	350	5832
Renwar, Morgan 1, sur 413	*	5842
Union, Simmonds 1, (North Agua Dulce) (perf 4810-35)	¶67 & 125	8706
REFUGIO COUNTY—		
Hewitt & Dougherty, Lambert 66 (Tomoconnor-Greta)	1250	5950
Houston, Heard 23 (Refugio)	450	4926
Nordan, O'Connor B-19 (Tomoconnor)	1250	5932
Quintana, Heard 15 (Tomoconnor)	2500	5927
Shield & Southern Cross, Ryals 3 (Refugio)	*	6801
South, Ryals 1-A (Refugio)	250	6775
T-N, Lambert 1 (Refugio)	*	7015
SAN PATRICIO COUNTY—		
Humble, Mayo (Taft)	350	4972
VICTORIA COUNTY—		
Gulf, Traylor B-3 (Heyser) (perf 5486-91)	350	6000
Owenby, Henderson & Pickering (Placedo)	*	4780

Fairbanks assuming proportions of major oil field.

* * *

Flank production at Orange may cover large area.

Houston.—Fairbanks, Harris County, being extended in two directions last week, is taking on the appearance of a major oil field. With the completion of the two extension wells and the already completed extension well to the south it is believed Fairbanks will be one of the more active fields in the Texas Gulf Coast during the remainder of the year. When Amerada Petroleum Corporation and Standolind Oil & Gas Company discovered the field the latter part of 1937, they had a number of leases falling due. They farmed them out with drilling obligation in different directions from the discovery well.

Outposts Look Good

Over a mile southeast of the discovery well, H. E. Williams' Vega 1, G. W. Williams Survey, was preparing to run 7-inch casing after drilling and coring to 6835 feet. Broken formation showing oil was logged from 6817 to 6825 feet. This eight-foot section showed over two percent saturation. The hole was cored 10 feet deeper but no sand was recovered. The 10 feet drilled like sand. A production test will be made next week.

Approximately 4000 feet north and east of the discovery well, Owenby Drilling Company's Myers 1, Geo. Ayers Survey, was flowing into burning pits March 11. It was making gas, oil and wash water through a ¼-inch choke with a tubing pressure of 1400 pounds and a casing pressure of 2000 pounds. Myers 1 was drilled to 6858 feet and logged broken formations showing oil and gas from 6750 feet to bottom. Five and one half-inch casing was set at 6858 feet and was perforated with 24 shots from 6833 to 6841 feet and with the same number from 6844 to 6852 feet.

The first commercial oil producer was completed at Clinton, Harris County, March 11, when Stanolind Oil & Gas Company brought in N. Barraco 1, Reels & Trobough Survey, flowing 349 barrels of pipe line oil in 21 hours. The oil was flowing through a ¼-inch choke with a tubing pressure of 380 pounds and a casing pressure of 420 pounds. Gas/oil ratio was 163 to 1.

Stanolind Oil & Gas Company's Barraco 1 was drilled to 3818 feet in Miocene sand logged at 3810 feet. Five and three quarter-inch casing was set at 3806 feet.

Several wells have been completed at Clinton but none have been considered profitable. Sands have been encountered at 3220 to 3225 feet, 3596 to 3600 feet, 3795 to 3823 feet and from 8080 to 8102 feet.

On the northwest flank of Orange, Orange County, Union Producing Company's Lutcher Moore 2, J. Dyson Survey, was waiting on cement to set at 6039 feet, preparatory to making a production test of a new sand for this side of the field. After logging salt water sand at 6039 feet the test set 7-inch casing at 6024 feet. Casing will be perforated at sands around 5990 feet. Gas sands were encountered from 5961 to 5987 feet, and oil sands were logged from 5989 to 5990 feet. The latter showed 13 ohms and 90 milivolts on an electrical logging device. On a drill stem test from 5965 to 5979 feet made through a ⅜-inch choke the well flowed oil in 17 minutes, and in 40 minutes was making oil and gas. When the crew had 33 stands of the drill stem out of the hole the well flowed oil for six minutes. Seven stands of oil were recovered. The oil tested 41 gravity at 84 degrees.

Approximately 1500 feet southeast of the discovery well on the southwest flank of the old Orange field, J. M. Campbell's Scales 1, Wm. Dyson Survey, was shut down waiting on orders at 5989 feet after swabbing salt water. Casing was perforated from 5903 to 5918 feet with 72 shots and the well showed salt water with a trace of oil

Company, Well and Location	Init. Prod. Bbls.	Depth
Portilla, Welder A-1 (Hughes)	*	6168
Transwestern, McFaddin 2-E (McFaddin)	425	4413
McFaddin E-2 (McFaddin)	200	4405
LAREDO DISTRICT		
DUVAL COUNTY—		
Cox & Hamon, Hoffman-Cowan & Sorey (Hoffman)	30	2761
Duval, Ruiz 7 (Hoffman)	50	2749
Hiawatha, Miller 4 (Sweden) (perf 5805-12)	¶5 & 19	5995
Magnolia, Duval Ranch 23 (Piedre Lumbre)	83	2051
Petroleum Producers, Worden & Drought A-1, sur 159	*	1750
Reynosa, Welder 2 (Seven Sisters)	500	2654
Southwood, Rossi A-5 (N. Sweden)	350	5363
Walstad 1 (N. Sweden)	500	5371
McMULLEN COUNTY—		
Collins, Hagist 2, sec 33	*	2136
Day, Wulff 1, sec 77	*	2018
WEBB COUNTY—		
Bridwell, Bland 1 (Killam)	*	2020
Bridwell, Garcia 1 (Killam)	46	2007
Brooks, Laurel 2 (Killam-Oilton)	250	2025
Daubert & Lipscomb A-2 (Killam-Oilton)	150	2023
Kenyon, Benavides 1 (Cole-Bruni) (perf 3270-80)	200	3445
Morrow, Garcia 1 (Killam-Oilton)	300	1923
Mountain Townsite, Fee 4 (Oilton)	160	1888
ZAPATA COUNTY—		
Calvin, Lopez 1 (Mirando Valley)	150	1881
Dulup, Trevino 33 (Escobas)	10	1209

*Failures; †Junked; ¶Million cu. ft. gas.

when swabbed. Top of the sand was logged at 5986 feet and 5½-inch casing was set at 5989 feet.

In the Seabreeze area, Chambers County, Sun Oil Company was running 7-inch casing in J. T. White 1, H.T.&B. Survey, Section 118. The hole is bottomed in sand showing oil at 8485 feet. Top of the sand was logged at 8474 feet and 7-inch will probably be set around 8470 feet.

Seabreeze Outpost Salty

Northeast of production at Seabreeze, Sun Oil Company's Seabreeze Land Company 1, H.T.&B. Survey, Section 102, showed salt water last week when casing was perforated. The hole was drilled to 8889 feet in salt water sand. Gas sand was logged from 8507 to 8512 feet and from 8716 to 8739 feet. Seven-inch casing was set at 8865 feet. After setting cement retainer at 8841 feet the operators underreamed at 8871 to 8880 feet. A 30-minute drill stem test through ¼-inch chokes showed seven stands of mud and six stands of salt water, no oil or gas. The hole was plugged back and cement was drilled out to 8875 feet. The well will be tested again next week.

Another failure was reported in the Cedar Bayou area, Chambers County. Ingot Oil Company and Merit Oil Company abandoned Winfree 1, C. Smith Survey, at 6670 feet in salt water sand. Top of the sand was logged at 6653 feet. A sand with an odor of oil was logged from 6399 to 6435 feet.

On the west side of Barbers Hill, Chambers County, Atlantic Refining Company completed Trasero 1, Wm. Bloodgood Survey, at 5602 feet after topping the oil sand at 5591 feet. The well made 453 barrels of pipe line oil daily. The company has made location for Trasero 2.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBERS HILL—		
Atlantic, Trasero 1	453	5602
CEDAR BAYOU—		
Ingot & Merit Oil Co., Winfree 1..	*	6670
FRIENDSWOOD—		
Humble, Beamer 5	400	6082
HARDIN—		
Atlantic, Cessna 1	331	7610
HASTINGS—		
Humble, Haden 10	280	6095
McDeed 8	610	6080
Shindler 6	624	6090
Pearland Oil Co., Alexander 3	630	6100
Stanolind, Autrey 7	570	6080
Edwards 8	450	6080
Shaw 16	589	6080
Sheffield 2	528	5430
Shyrock 3	560	6080
LOCHRIDGE—		
Gulf, Wood A-3	220	6368
MAGNET—		
Humble, Cockburn 7	90	5543
NORME—		
Shell, Carpenter 7	700	6034
SEGNO—		
Gulf, Wing 10	325	5184
SILSBEE—		
Republic, Brooks 22 (wo)	275	6914
TOMBALL—		
Humble, Tallman 2	¶2	5630
Shell, Tyson B-1	600	5565
WEST BEAUMONT—		
Glenn H. McCarthy, Longe 1 (wo)	240	5408
JEFFERSON COUNTY—		
Humble, Willis 1, n of Nome, J. Vannes sur	*	6500

*Failures; †Junked; ¶Million cu. ft. gas.

Another Call Failure

Houston Oil Company has had its share of trouble at Call field, Newton County. Another test, the fifth, was abandoned last week. The operator's Sabine Tram 3, H.&T.C. Survey, Section 37, was abandoned at 7122 feet in salt water sand. The sand was topped at 7013 feet. The company has completed only one well in the area and that was the discovery well. And now it is making salt water and operators are forced to work it over. Last week the well was perforated from 6905 to 6908 feet, and after swabbing the well flowed oil and salt water. Pumping equipment will be installed.

Six wells at Hardin, Liberty County, are down to the sand and should be completed next week. Arkansas Fuel Oil Company's Green 1, A. B. Hardin Survey, was drilling cement plug at 7593 feet where 7-inch casing was set. The hole is bottomed at 7618 feet and sand showing oil was logged from 7592 to 7618 feet. Jack Frazier is testing a new sand. Sand showing oil was encountered at 7386 to 7395 feet. Gulf Oil Corporation's Barfield A-1, H. B. Johnston Survey, was waiting on cement at 7624 feet. Five-inch casing was set at 7624 feet and sand showing oil was encountered at 7605 to 7622 feet. Halliburton Oil Producing Company's Hanchey 1 was down to 7534 feet in broken formation showing oil. Top of the formation was encountered at 7531 feet. Humble Oil & Refining Company's McMurtry 1, cored sand showing oil from 7551 to 7563 feet and set 5¾-inch casing at 7544 feet. L. W. Wick's Tullos 2 set 7-inch casing at 7597 feet after drilling to 7620 feet. Sand showing oil was logged at 7602 to 7618 feet.

To Test New Sand

Hamman Exploration Company will probably test Crooker 1 at South Bay City, Matagorda County, the coming week. The well was drilled deeper and discovered a new sand. It is bottomed at 10,497 feet and 5-inch casing has been set on bottom. Reports are that it has logged around 175 feet of broken formation showing oil and gas similar to that found at Old Ocean. If the well is a commercial producer below 10,000 feet, South Bay City will be the second field in the Texas Gulf Coast to produce from that depth.

Pan American Production Company continues to core deeper in Richer 1, South Bay City. Last week the well was down to 9586 feet and logged another gas sand from 9501 to 9525 feet. Smith & McDannald's Gaines 1, topped a sand at 8073 feet last week and was drilling at 8150 feet.

In the Wilson Creek area, United North & South Development Company's Lambert 1, C.B.&M. Cotton Survey, made 75 barrels of 39 gravity oil daily on gas lift at 7900 feet.

Gulf Oil Corporation is searching for a deeper producing horizon at Segno, Polk County. Regan 2, I.&G.N. Survey, No. 15, was coring in shale at 7377 feet. This is the deepest well ever drilled at Segno.

Approximately a half mile southwest of Withers and in the Blue Basin area, Wharton County, Cockburn and Hargrove was preparing to test Britton 1, J. Caldwell Survey, at 5549 feet. Five and half-inch casing has been set. Sands with a gas odor was logged from 5501 to 5549 feet.

Southeast of production at Dickinson, Galveston County, Humble Oil & Refining Company made a drill stem test on Peters 2, J. W. Lytle Survey, last week. The test, made from 8154 to 8174 feet, recovered 700 feet of mud and 1860 feet of salt water in 10 minutes through ¼-inch chokes. The well is being drilled deeper.

N. W. Hunter recovered salt water and a trace of oil on a drill stem test of Stewart 2, Hitchcock area, Galveston County, at 5182 feet.

Texas January figures above a year ago

Austin.—Reports issued by the Texas Railroad Commission last week show that the average indicated daily production for January was 1,302,243 barrels, a total of 40,369,545 barrels for the month. The allowable averaged 1,330,806 barrels daily. Both the allowable and production were slightly below the average for December.

Operators reported 78,266 producing wells which included 31,260 flowing wells and 47,006 pumping wells. There were 701 more wells producing in January than were reported in December.

Pipe line runs for the month totalled 39,984,459 barrels. Tank car movements totaled 42,712 barrels, 150,795 barrels were shipped by truck, 27,813 barrels were used as fuel, and 32,719 barrels were absorbed for miscellaneous purposes.

The daily average allowable per well for January was 17.012 barrels which was 1.985 barrels less than the daily average for January, 1937. The daily allowable of 1,330,806 barrels was 34,883 barrels higher than the allowable for January, 1937, when there were 10,060 fewer wells producing in Texas.

Texas state lands offered

Bids on several tracts of State land in the Pecos and Big Wichita Rivers will be received by the Texas Board of Mineral Development on March 24.

The Wichita River tracts are in Clay County and consist of two 10-acre leases bounded by the F. Longardio and A. L. Gossett Surveys on the northwest, and the S. L. Palmer and C. T. Taylor Surveys on the southeast. There are now seven offsets to tract one and two offsets to tract two.

The minimum bid must be $100 an acre bonus, ⅛ royalty, and $5.00 an acre annual rental. In addition, drilling must begin within 60 days and operations maintained continuously until offsets are drilled. Bond of $2500 to insure fulfillment of contract is required.

The two tracts in the Pecos River each include 100 acres and lie between Pecos and Ward Counties. About four wells have been drilled within a thousand feet of the boundaries of tract one, which extends from the southwest corner of Section 9, Block 32, H&TC Railway Company to the northeast corner of Block 8, H&GN Railway.

Tract two lies east of tract one and extends to the northeast corner of Section 6, Block 9, H&GN Survey. There are about six offset wells within a thousand feet of this tract. A minimum bid of $25.00 per acre and bond of $7500.00 is required.

Making production test mile off Gulf shore.

* * *

Jennings extension gets two immediate offsets.

Lake Charles.—Probably the next oil field in South Louisiana will be out in the Gulf of Mexico. Superior Oil Company was preparing to make a production test on State 1, a mile off shore of Cameron Parish, at the close of the week. Drilled to 9394 feet in shale while reaming at 8810 feet the drill pipe stuck. After all attempts to loosen, hole was plugged back to 6000 feet and was shut down waiting on cement to set. Casing will be perforated this week for a test. Sand showing oil was logged from 5110 to 5182 feet, 6708 to 6711 feet, 7384 to 7403 feet and 7464 to 7484 feet. Seven and five eighths-inch casing was set at 7166 feet. The company will probably test sands at 5110 to 5182 feet. These sands showed around 10 ohms on an electrical logging device and also side wall samples at 5155 feet showed saturated oil sands. There has been some question as to whether the well showed gas at 9324 feet or if heaving shale was encountered. Some are of the opinion that the shale was logged and it caused the pipe to become stuck. It was the intention of the company to make a deep test. Around $80,000 was spent for piling and derrick foundation.

Jennings Location

After discovering a new sand and extending Jennings production north, Superior Oil Company announced location for J. Clement 3, 300 feet south of the discovery well, Acadia Parish. Equipment is moving in for Clement 2, 300 feet east of the extension test. Clement 1, Section 46-9s-2w, was drilled to 7324 feet and reported coring sand showing oil from 7046 to 7056 feet but due to stuck drill pipe the hole was plugged back and redrilled to 6977 feet, 23 feet of sand showing oil encountered at 6954 feet, continuing to that depth. Seven-inch casing was set at 6950 feet. When washed in it made 431 barrels of 39.6 gravity pipe line oil daily through a 14/64-inch choke with a tubing pressure of 1310 pounds and a casing pressure of 1125 pounds. The gas/oil ratio was 600 to 1.

On the southeast side of Jennings, Stanolind Oil & Gas Company's Houssiere Latrielle, Section 47-9s-2w, was coring sand showing oil at 7255 feet at the end of the week. Top of the sand was logged at 7200 feet and the clean oil sand was encountered at 7235 feet. The well will be cored a few feet deeper and a drill-stem test made.

In the West Lake Verrett area, St. Martin Parish, Shell Petroleum Corporation and Tide Water Associated Oil Company's Adams 1, Section 11-14s-12e, was attracting considerable attention last week. The well was down to 9100 feet in shale and was drilling. A sand with a good odor of oil was reported from 8770 to 8801 feet. The wildcat has logged several sands but information is being withheld.

Another well on the Lake Mongoulois salt dome logged salt last week. The Texas Company's State 4, Section 14-10s-9e, was drilled to 7988 feet in salt after topping it at 7970 feet. The well has been ordered shut down. It will plug back and test around 7713 feet where sands were encountered.

On the Section 28 salt dome, Carter, Stewart et al's Martin 2, Section 32-9s-7e, was coring salt at the end of the week at 4626 feet after logging top of the formation at 4508 feet.

The Texas Company continues to extend the largest field in South Louisiana. Last week the company's Marrero 2, Lafitte, Section 21-17s-24e, was preparing to test at 10,187 feet, with 7⅝-inch casing set at 10,159 feet. If the well is a producer it will extend the field northeast.

The Texas Company made location on the northwest flank of the field. Madison Realty Company B-1 is 820 feet west and 3108 feet north of the southwest corner of Section 19-17s-24e.

Retesting at Lafitte

The Texas Company retested the 8100-foot sand last week and got one of the best producers in the field. L. L. E. Lafitte 4, Section 20-17s-24e, which was completed some time ago at 8100 feet, but due to a high gas/oil ratio was killed, came in last week flowing 1495 barrels of 33.3 gravity pipe line oil daily through ⅜-inch choke after casing had been perforated with 242 holes from 8035 to 8090 feet. Gas/oil ratio was 500 to 1.

West of Covington, St. Tammany Parish, O. Phillips was testing Stevenson 1, Section 33-6s-10e. The hole was drilled to 1500 feet and was temporarily abandoned. On resuming 5-inch casing was set at 1400 feet and gas sand from 1340 to 1355 feet was tested. Casing was perforated from 1344 to 1355 feet and while coming out of the hole the well started flowing. It was shut in after showing washwater and gas. There was no setting in the hole. Pressures went up to 50 pounds and then dropped off. After being shut in 6 or 7 hours the wildcat again was opened, made more gas and salt water and then pressure fell off.

After abandoning St. Charles Land Company 1, Amerada Petroleum Corporation and Louisiana Land & Exploration Company made location for State 4 at Bayou Des Allemands, St. Charles Parish. It is 3576 feet south and 4724 feet west of the northeast corner of Section 13-15s-20e. St. Charles Land Company 1 was abandoned at 9263 feet in salt, topped at 9250 feet. A series of tests were made up the hole to 5517 feet but all showed salt water.

The Texas Company's State Fausse Point 4, Fausse Point, Section 35-11s-8e, continues to attract considerable attention. Last week the well was coring in sand and shale at 8255 feet with odors of oil. The wildcat has logged several broken formations from 7912 to 8255 feet with odors of oil.

Gulf Oil Corporation will test Lafourche Levee Basin District 7 again in the new deep sand at Lake Hermitage, Plaquemines Parish. After perforating casing with 40 holes from 8720 to 8740 feet the well came in making gas and distillate. On the last gauge it made 30 gallons of distillate in 15 hours through ⅛-inch choke. It will be killed and perforations squeezed with cement.

The Texas Company is searching for deeper production at Four Isle. State 9, Section 26-21s-16e, Terrebonne Parish, was coring in shale at 10,100 feet last week after running an electric log to 10,040 feet. This is the deepest hole drilled at Four Isle.

Shell Petroleum Corporation is preparing to complete another producer at Gibson, Terrebonne Parish. Seven-inch casing will probably be set in sand showing oil at 9502 feet.

At North Crowley, Acadia Parish, Humble Oil & Refining Company's Trahan 1, Section 3-9s-1e, was drilling at 8217 feet in lime and has evidently missed the 7700- and 8100-foot producing horizons.

In the Littel Cheniere area, Cameron Parish, Humble Oil & Refining Company set a protection string of 9⅝-inch casing at 7500 feet in Miami Corporation 1-B, Section 7-14s-6w. At the end of the week the hole was down to 7600 feet in shale.

Rodessa in Texas classed three fields by Commission

In line with its recent decision to class as separate pools the Jefferson end of Rodessa in Marion County, and Rodessa in Cass County, the Texas Railroad Commission in its allocations for March gave allowables to the two fields.

A field output of 5976 barrels was allotted to Jefferson for 49 producers, the area proven to oil production being given as 833.44 acres. The average bottom-hole pressure in that area was given as 2,559.8 pounds.

In the Cass County part of Rodessa, allowables for 278 wells in the Dees-Young horizons were set at 23,720 barrels and to 64 wells from the Gloyd an allowable of 6711 barrels was given. Area proven to oil production from the Dees-Young horizons was listed as 5,277.31 acres and to Gloyd horizon production, 887 acres.

The combined allowable for the entire East Texas part of Rodessa (including Jefferson) was 36,407 barrels.

NORTH LOUISIANA

Arkansas-Louisiana Rodessa fingers brought closer.

* * *

Lisbon outpost may be connection with Sugar Creek field.

Shreveport, La.—The Miller County Arkansas, end of Rodessa, was extended ¼-mile west and about the same distance in extension was given the north edge of the Louisiana side of the field last week when Gulf Oil Corporation's J. W. Hanner 1, SE SE 16-20-28, was completed at 6020 feet, flowing 150 barrels the first 15 hours through ½-inch choke. It was Gulf's first operation on the Arkansas side of Rodessa. Miller County has taken on new life in the last fortnight.

Gulf also last week completed L. Henderson A-3, R. Bennington Survey, Marion County, Texas (Jefferson) flowing 318 barrels in first 14 hours through ¼-inch choke from 6036 feet.

One and one half miles southwest of Jefferson production, Arkansas Fuel Oil Company's Pitts 1, Lockhart Survey, was drilling below 4332 feet after checking with Jefferson producers on top of the Washita at 2971 feet and tentative top of red beds at 3751 feet; elevation is 202 feet.

Four miles northwest of Cass County, Texas, production, Vaughn Production Company is abandoning Ryles 1, J. Taylor Survey, at 6290 feet. With elevation of 263 feet, it checked lower than Cass County producers, logging base of anhydrite stringer at 5896 feet. A half-mile farther northeast G. H. Chamblee's White-Walker 1, J. J. Potter Survey, was drilling near 5000 feet.

Near Hughes Springs, western Cass County, Vincent A. Hughes' Lyster 1, J. W. Bateman Survey, was testing after setting 5½-inch casing at 4345 feet, with corrected total depth of 4463 feet. Operators reported a showing in Paluxy. Corrected marker on top of Georgetown lime was given as 4420 feet.

The latest salt water table compiled on the Rodessa field, as of March 1, shows a total of 232 of the field's 923 wells producing varying amounts of salt water. Of the wells showing salt water 157 are in Caddo Parish, Louisiana; 64 in Cass County, Texas; eight in Marion County, Texas; and three in Miller County, Arkansas.

Lisbon Outpost May Be In Sugar Creek

Location for a second test 2 miles southwest of Lisbon production and a southwest offset to a commercial well completed in NE NE 16-20n-5w, Claiborne Parish, was made last week by Weaver Oil Corporation at Alex Edmonds 2, SW NE 16-20n-5w.

Alex Edmonds 1 was completed after several acidizations as a 100-barrel well in basal Glen Rose lime at the Lisbon producing depth but some dispute arose as to whether the well was on the southwest flank of the Lisbon field or on a northeast nose from Sugar Creek, as it was about midway between production in the two areas. Since then production at Lisbon has been extended one mile farther southwest into SW SW 20-20n-5w.

Another outside location just made at Lisbon was W. H. North and associates' T. F. Patton 1, C SW NE 11-20n-5w. Four wells were completed last week in Lisbon, one of them a connecting link in Section 2-20n-5w, between a recent flowing well in SW SW 2-20n-5w, and the main part of the field. Another of the week's completions was in the edge of production to the east.

West Zwolle Has New Level

J. G. Sutton Oil Company and associates last week were ready to drill plugs in 7-inch casing cemented at 3840 feet in Sabine Lumber Company 1, SE NW NE 23-17n-14w, Sabine Parish, Blue Lake (West Zwolle) which showed 1200 feet of light oil in a 9-minute drill-stem test from Washita saturated lime from 3841 to 3853 feet. This would be a new producing horizon for this old shallow chalk rock field.

The south end of the old East Zwolle field recently has taken on new life and five producers have been added there in the last few weeks.

Although electrical log failed to show any horizons of porosity or resistivity, decision was made last week to deepen Hunter & Rowe's (formerly W. J.

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANSE LA BUTTE—		
Louisiana Crusader, Begnaud 5	*	1689
Central Oil Co. 2	*	2015
BAYOU DES ALLEMANDES—		
Amerada, St. Charles Land 1	*	9263
CAMERON MEADOWS—		
Burton Sutton, School Land 22	400	4014
JENNINGS—		
Fred I. Getty, Jennings Fee 1	100	2062
Ladak Oil Co., J. Clement 4	100	1852
Superior, J. Clement 1	431	6977
LAFITTE—		
Texas Co., L. L. E. Lafitte 4 (wo)	1495	8090
WELSH—		
Howard Clayton, Welsh 1	4	1215
EAST BATON ROUGE PARISH—		
Cavalier Oil Co., Elliott 1, n of Hope Villa, 3-8s-2e	*	7684

*Failures; †Junked; ¶Million cu. ft. gas.

The Boss Hasn't Seen This

The Boss is a peculiar fellow. You know we supplement a complete supply service with shop facilities of our own. There isn't a gadget in the plant that he can't operate better than the man we pay to run it. And sometimes we think he knows more about steel than the men who make it. Right now he's out in the shop running a test on an item we've sold for years. Wants to be sure it's up to specifications. No skin off of him, but important to you. He's that way. And so this is one ad the boss hasn't seen.

PELICAN WELL TOOL & SUPPLY CO.

SHREVEPORT LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

Furlong, Jr.) E. M. Clarke 1, Section 10-20n-7e, Morehouse Parish wildcat "in the trend" from contract depth of 6515 feet. Opinions differ as to whether this is in Lower Marine or top of Permian. Some determinations place top of Permian at 6218 feet.

North Louisiana continued to feel the effects last week of the lease play on the southeast end of the Schuler-Buckner trend, as new blocks were assembled and re-taken in Morehouse, Union and West Carroll Parishes.

In Morehouse Parish, Union Producing Company renewed a 7500-acre block around Section 2-21n-7e, and was adding to its holdings in the same parish in township 20 north, range 6 east. In Union Parish, The Hunter Company of Shreveport leased several hundred acres around the southwest part of township 22 north, range 2 west.

In West Carroll Parish, more nearly in the southeast Snow Hill trend, Sun Oil Company was taking scattered leases in townships 19 and 20 north, range 9 east. In the same parish, Clyde Turner assembled a 6000-acre block northeast of the village of Floyd, probably for a major company.

On the northeast nose of the old shallow Homer field, Claiborne Parish, Shell Petroleum Corporation leased 220 acres in Sections 3, 9 and 17-21n-7w, and in the old Pine Island field, Caddo Parish, Tide Water Associated Oil Company leased SE NW and NE SW 19-21n-15w, and 75 acres in Section 30-21n-15w.

James Peyton has taken a block in Jackson Parish formerly held by Seaboard Oil Corporation and Mid-Continent Petroleum Company, around Section 36-15n-4w, and is trying to get cooperation to drill a 7500-foot test in that section.

F. F. Meadows assigned approximately 1000 acres east of the shallow Cartersville field, Bossier and Webster Parishes, to Magnolia Petroleum Company, the acreage being in Sections 7, 10, 17 and 18-23n-11w. One mile northeast of the shallow Shongaloo gas field, where a deep test is being drilled, Atlantic Refining Company and Tide Water Associated Oil Company took a joint 85-acre lease in Section 27-23n-9w.

Seventeen Permits

Seventeen drilling permits were issued last week by the minerals division, Louisiana Conservation Commission of which fourteen were for North Louisiana, divided among the following parishes: Bossier, one (Sligo); Caddo, two (both in Rodessa); Claiborne, four (all in Lisbon); DeSoto, three (all in Bull Bayou); LaSalle, one (Urania); Sabine, two (Zwolle); and Webster, one (Cotton Valley).

The three in south Louisiana were divided among Ascension, Iberia and St. Mary Parishes, one each.

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
Standard, Rodessa O&L Co. 1, 10-23n-16w	445	5968
Union Prod. Co., Harris 7, 10-23n-16w	224	5950
CADDO PARISH (Dixie)—		
A. D. Robinson, Dickson 1, 22-20n-14w	*	2805
J. E. Sedberry, Dickinson 1, 15-19n-14w	20	2505
CLAIBORNE PARISH (Lisbon)—		
Gulf, McDonald 1, 2-20n-5w	1200	5218
Texas Canadian Oil Co., Tanner 1, 32-21n-4w	600	5289
Vaughn & Marr, King 3, 30-21n-4w	1560	5133
LINCOLN PARISH (Lisbon)—		
Magnolia, Patton Est. 1, 7-20n-4w	1224	5389
WEBSTER PARISH (Cotton Valley)—		
Ohio, Bodcaw 48, Acct. 2, 15-21n-10w	409	8202
A. H. Gray 1, 27-21n-10w	243	8143

*Failures; †Junked; ¶Million cu. ft. gas.

Columbia County wildcat waiting for production test

El Dorado, Ark.—Main interest in Arkansas last week was centered on the outcome of Kerr-Lynn Oil Company's Barnett 1, SE SW NE 14-17-20, Columbia County, which showed for a large producer of 37.2 gravity oil on March 4, after 5-inch casing was perforated with 34 shots from 7623-51 feet in Permian lime, half of the shots being in the last 2 feet shot. Total depth is 7740 feet; elevation is 321 feet and top of Permian lime is 7618 feet.

The test is midway between the Buckner and Schuler fields, both productive from Permian lime. A new field at the Kerr-Lynn area would give added impetus to development along a 220-mile southeast-northwest trend from these areas.

After being allowed to flow for 30 minutes after coming in March 4, Kerr-Lynn's well was shut in for tanks. However, the master gate cracked March 5 under the heavy pressure and the well flowed estimated 10 barrels hourly through that night until a new valve was installed. Later, it was still making a small amount of gas and oil through the valve. Two 1500-barrel tanks and a 1200-barrel tank are already at location, and opening of the well was expected during the week-end.

Location for a Permian lime wildcat "in the trend" in Union County near Strong, was announced last week by Joe Modisett and Associates at Frost Lumber Company 1 (Union Sawmill Company), NE NE 8-18-12, which is expected to spud within three weeks. It is a geophysical location on a 2000-acre tract, in which Federal Petroleum Company owns a one half interest. The area was recently shot by Kerr-Lynn Oil Company.

Reaching of Permian lime in Standard Oil Company of Louisiana's second test at Buckner, Columbia County, was delayed last week by a fishing job in Bodcaw-Barbara 1, C SE NE 18-16-22, between the discovery well and a recently abandoned test in SE NW 18-16-22, that showed salt water in the Permian. Standard's Bodcaw-Barbara 1 was fishing at 7226 feet; elevation is 235 feet. It topped anhydrite at 7048 feet, 32 feet lower than the same marker in the discovery well. However, Standard's Crone 1, C NW SE 8-16-22, east of the discovery in SW SW 8-16-22, with elevation of 271 feet, is running 4 feet higher than the discovery. It is below 7192 feet. The same company's W. P. Phillips 1, Section 15-17-19, at Village, also on a geophysical location, was drilling below 4030 feet.

Schuler, Union County, did not add a well during the last week. Lion Oil Refining Company's Morgan B-5, Section 18-18-17, waited on cement to set at 7625 feet. Phillips Petroleum Company's Rosen 2, NE SE 18-18-17, cored additional saturation at 7579 feet and its Marine 1, NW NE 20-18-17, was coring below 7620 feet.

Corrected gravity of Marine Oil Company's M. Justiss 4, Section 18-18-17, first real oil well in Permian at Schuler, was 37.3 gravity, and gas/oil ratio was 990 to 1. It is flowing 640 barrels per day through ¼-inch choke.

Arkansas proposes law to permit carbon black

One of the subjects listed in the call for a special session of the Arkansas legislature, issued last week by Governor Carl E. Bailey, was a proposal to amend Act 350 of 1925, which prohibits the burning of natural gas for the purpose of manufacturing carbon black.

Brooks Shults of Fulton, Arkansas, announced he had asked for this act to be amended to permit establishment of a carbon-black plant in the Miller County, Arkansas, end of Rodessa.

Shults was quoted as saying that he understood a "great deal of natural gas produced in the Miller (Rodessa) field in connection with oil development is going to waste, being burned to prevent its dissemination in the air. Our thought was that we might get a carbon-black plant in this part of the state to avoid this waste."

Eldorado, Arkansas.—Five drilling permits were authorized last week by the Arkansas Board of Conservation, as follows: Franklin County—Ozark Natural Gas Company, G. C. Hardin 1, 660 feet north and west SEc SW SE 11-8n-29w; Nevada County—Charles F. Steele, Haynie 1, 330 S & W NEc SE NW 6-14-20; Union County (Schuler)—Lion Oil Refining Company, Marine Oil Company 3, 330 feet E of west line and 330 feet N of south line SE SW 17-18-17; Phillips Petroleum Company, M. Justiss 3, 660 feet from north and south lines, and 666 feet from east and west lines (C Lot 6), Lot 6, NW 18-18-17; T. P. Marks 3, 664 feet from north and south lines and 665 feet from east and west lines Lot 2, SW (C Lot 2) 18-18-17.

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MILLER COUNTY (Rodessa)—		
R. H. Long, J. P. Greer 3, 10-20-28	480	6155
Mrs. S. O. Thompson, A. L. Treadway A-1, 10-20-28	428	6147
Sam Tillingsworth, Treadway 1, 10-20-28	480	6146
G. C. Grasty, Mitchell 1, 11-20-28	480	6165
Gulf, Hanner 1, 16-20-28	240	6020

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHEASTERN STATES

Start second test on Mississippi salt dome

Jackson, Miss.—Location for a second test on the newly discovered Edwards salt dome in west Hinds County, discovered by Southern Natural Gas Company in Angelo Williams 1, Section 35-6n-4w, abandoned in salt at 4344 feet, was made last week by Cleve Love and associates at Progressive Realty Company 1, SE SW 35-6n-4w, where a 122-foot derrick has been erected.

Just across the Warren County line, west of the Black River, M. Larew of Houston is assembling a block.

Shell Petroleum Corporation has two gravimeter units still working in southwest Mississippi, one in Adams County and the other, in Wilkinson County. Sun Oil Company's gravimeter unit continues to work in Pike County as does The California Company's same type unit. The latter company also has a reflection seismograph party working in townships 3 and 4 north, range 6 east, Amite County.

Two Mississippi wildcats set casing last week at top of what was identified as the Het. Cleve Love and associates set 10-inch 35-pound casing at 1374 feet, 2 feet above the believed top of the Het in J. J. Newman Lumber Company 2, C SW 9-1s-8w, George County, and will test gas possibilities at that horizon where a small showing was had in a previous hole. In Lamar County, Southern Mississippi Petroleum Corporation set 10-inch casing at 1131 feet, believed top of the Het in Morris 1, NW SE 4-2n-14w, Lamar County.

The lower house of Mississippi state legislature has passed and sent to the senate a bill to abolish the office of state land commissioner and to create instead the office of secretary of public lands. The state land commissioner's office is an elective one, while the secretary of public lands would be appointive.

Mississippi delays tideland leasing

Until the United States Congress acts finally upon a Senate-approved resolution empowering the United States Attorney General to file suits to obtain title on submerged lands of sea-bordering states, the senate conservation committee of the Mississippi state legislature will take no action on a resolution urging leasing for oil purposes 400,000 acres of state-owned land in Mississippi Sound, State Senator Robert Lambright said last week.

Investigation as to whether oil may be present should also precede state legislative action on the resolution, Lambright said. Twelve oil companies have submitted bids for the land, leasing of which is opposed by Gulf Coast fishermen and business men who maintain drilling operations would destroy the fishing industry and detract from scenic splendor of the resort section.

"We can do nothing until the state's right to retain title has been established," said Lambright. "Even if the Washington resolution fails, the resolution before our committee will not be approved if there is a reasonable belief oil is present. In that case, the state itself should do the drilling and realize fullest financial benefit."

Alabama

Mobile, Ala. — Amerada Petroleum Corporation has re-taken a block in Clarke County, southwest Alabama, near the north end of the Jackson Fault. The block was taken on a ten-year commercial basis. It comprises Sections 13, 24, 25 and part of 36-7n-1e, and Sections 7, 8, 17, 18, 19 and 20-7n-2e. It practically joins a block recently taken by Arkansas Fuel Oil Company and J. B. Greer of Shreveport.

North Dakota wildcat drilling is resumed

Minot, N. D.—As preparations are made to resume drilling at Standard Oil Company of California's deep test on the Nels Kamp farm, Williams County, it is understood that at least two other North Dakota deep tests are planned by the company regardless of the outcome of the present test. Shortage of water forced a shut-down of the Kamp wildcat, in the Nesson Flats area, late in January. Casing was set to bottom at 6750 feet.

The Standard company's lease holdings in western North Dakota now total 200,000 acres. Tentative plans call for tests on both the north and south sides of the Missouri river.

A seismograph crew of Geophysical Surveys, Inc. of Dallas, Texas, is scheduled to return to the area about April 1 to continue work halted by severe weather last winter. The crew, which is in charge of C. F. Bishop, will make its headquarters at Sanish.

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Muskegon Oil Corp., Sebright 4, sw se ne 21-4n-13w	100	1580
CLARE COUNTY—		
James McKay, Fee 12, nw se sw 24-18n-5w	*	1677
GLADWIN COUNTY—		
Bentley Oil Co., State A-4, sw se ne 20-17n-2e	45	3535
Stork Oil Co., Smart 2, nw nw ne 29-17n-2e	110	3530
Turner Pet. Corp., State E-1, nw ne ne 29-17n-2e	51	3536
Sun, Strohkirch 2, se se se 4-18n-1w	350	3666
Strohkirch 7, ne nw nw 10-18n-1w	700	3657
F. O. Whitelow, Fitzwater 2, ne se se 26-18n-1w	130	3595
Robt. Tope, Buehler 5, ne sw ne 26-18n-1w	250	3590
Gordon Oil Co., State D-4, sw ne nw 35-18n-1w	110	3581
Hanners Dev. Co., State 2, ne se sw 35-18n-1w	20	3590
ISABELLA COUNTY—		
Pure, Baker 4, ne se nw 33-15n-6w	190	3683
SAGINAW COUNTY—		
Hogan, Inc., Price 1, sw ne nw 2-11n-1e	*	3238

*Failures; †Junked; ¶Million cu. ft. gas.

MICHIGAN FIELDS

Edenville Township work gaining more momentum

Mt. Pleasant, Mich.—The Edenville Township, Midland County, drilling play continued to gain momentum this week with eight tests drilling and seven other active locations, while interest continued to build up in the shallow Traverse horizon production in the Allegan County district.

Principal cause of new activity in Western Michigan, is Eureka Development Company's Widenfeller 1, NE NW NW, 29-4n-12w, Allegan County, Dorr Township, which logged a good oil show in Upper Traverse lime at 1600 feet, where six-inch casing is being cemented for a test. Eureka's test is about eight miles southeast of the Traverse lime pool in Salem Township.

S. B. Hood's Wright 1, 9-3n-13w, Monterey Township, Allegan County, was being cased with six-inch string this week at 1610 feet, with operators expecting to get a test on the well before the end of the week. This wildcat flowed from 1610 feet, Upper Traverse, three weeks ago, before casing had been run. Fire destroyed the drilling machine later.

Early reports on Jones & Rose's State B-2, NE NW SE, 20-17n-2e, Bentley Township, Gladwin County, crediting the well with 500 barrels after a 500 gallon acid shot in 16 hours, proved over-optimistic, with the well actually grossing 196 barrels the first 10 hours, after which it went dead. It is being agitated. Out of nine previously completed wells in the Bentley district, the best reached less than 200 barrels the first 24 hours after acid.

No completions are due in the new Edenville district for possibly three weeks with Mammoth Producing & Refining Company's west offset to the discovery the deepest with 1900 feet. The discovery bottomed at 3794 feet. Upper bed markers, however, will be drilled on a half dozen tests within 10 days, to give operators the first definite control on the play which now covers about four square miles.

Michigan production tax receipts down

Lansing, Mich.—Severance tax collections on January oil and gas production in Michigan totaled $38,828, a marked decline from the $43,265 collected the previous month, the state tax commission announced last week.

The January report showed production of 1,599,676 barrels of oil valued at the well at $1,773,413, and of 1,281,206,427 cubic feet of gas valued at $168,010, while the December report showed production of 1,629,405 barrels of oil valued at $2,017,276 and 1,006,511,662 cubic feet of gas valued at $150,272.

EASTERN FIELDS

Deepened Ohio test, revives Washington County interest

Pittsburgh.—George Pickens et al's Mrs. Emily Adkins 1, Washington County, Ohio, which was deepened from a shallow producing sand to the Berea Grit, came in last week with an initial production estimated at 200 barrels daily and gave new life to the revival of oil operations in that Southeastern Ohio section. The well is just on the edge of Newport, near the West Virginia line.

Completions were lacking in the New York-Pennsylvania Oriskany deep sand gas area, but four new locations were announced. Two were in the Woodhull Township field of Steuben County, New York: New Penn Development Company on the M. K. Husted farm, and Clancy et al on the R. Towsley farm. Another New York operation is that of Empire Producing Company on the Dan Clark tract in Willing Township, Allegany County. The sole Pennsylvania new operation was announced for the U. B. Russell farm, Sharon Township, Potter County, by Williamsport Natural Gas Company.

Tennessee Producer

In northern Clay County, Tennessee, Harmon Overstreet's Cordell Hull 1 was deepened 35 feet to 555 feet, where initial production of 10 barrels an hour was obtained. The test is about six miles north of Celina and is producing from a formation known locally as the First Celina sand, geologically termed the Lowville formation of the Middle Ordovician Age. It is an extension of the old Kettle Creek pool of Cumberland County, Kentucky, which was at its peak more than 15 years ago.

Clay County and Jackson County, to the south, have about 20 rigs active. Several major companies are reported negotiating for leases with a view to exploration of the St. Peters sand, corresponding to the Wilcox in Oklahoma. A group of St. Louis capitalists are backing a St. Peter well on the Donaldson Heirs tract within the Celina city limits. The formation is expected at about 2000 feet.

In the Prairie Creek Pool of Vigo County, Indiana, Carter Oil Company's Louisa M. Padduck 1, Section 16-10-10w, was deepened to 2132 feet in the Dundee formation where it gauged 2,000,000 cubic feet after acidization with 1000 gallons.

EASTERN FIELDS
Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
C. J. Ross, Evans 1	¶.10	1095
FAIRFIELD COUNTY—		
City Natural Gas Works, Schonebarger 1	¶.32	2280
GUERNSEY COUNTY—		
Jones & Jewell, Smith 1	¶.62	1396
KNOX COUNTY—		
Preston Oil Co., McCament 1	6	3106
Clairmont O&G Co., Rice 1	¶.40	2250
J. B. Reed, Whitney 1	¶	2850
LICKING COUNTY—		
Emerald Pet. Co. et al, Cochran 4	110	3020
Rutledge et al, Scott 2	¶.10	707
LORAIN COUNTY—		
Wm. Dempsey, Weubker 1	¶1.79	2410
MEIGS COUNTY—		
Bowman & Deem, Musser 2	¶.34	1072
Proffitt et al, Theiss	*	725
MONROE COUNTY—		
Drum et al, Leisure 3	1	1305
MORGAN COUNTY—		
O. C. Dunn, Dale 240	1	96
MUSKINGUM COUNTY—		
Ohio F. G. Co., Melvin 1	*	3991
PERRY COUNTY—		
Weaver et al, Esselstein 5	3	1180
STARK COUNTY—		
East Ohio Gas Co., Mitchell 2	¶.17	4132
TUSCARAWAS COUNTY—		
Fairfield Brick Co., Status Dev. Co. 1	¶1.30	4845
WASHINGTON COUNTY—		
Perdew Oil Co., Perdew 1	8	1486
Yockey et al, Holshu	8	797
Hope Const. & Ref. Co. Graham 1	¶.10	1833
John Tice 3	¶.08	1845
WOOD COUNTY—		
Myron Jones & Sons, Town 1	10	....

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
CABEL COUNTY—		
Smith et al, Chapman 1	¶.45	2410
CLAY COUNTY—		
Gilco O&G Co., Elliott Splint Coal Co.	¶.30	1782
GILMER COUNTY—		
D. W. Simon, Frame 2	¶.40	2097
Null & Moorhead, Divers 1	¶.10	1850
Chartiers Oil Co., Huffman 16	*	2155
KANAWHA COUNTY—		
United F. G. Co., Bruen 4767	¶15.77	5093
MARION COUNTY—		
Owens-Illinois Glass Co., Moore 1	*	2660
PLEASANTS COUNTY—		
Ward & Deem, Dye Hrs. 2	1	513
RITCHIE COUNTY—		
Dye Farm O&G Co., Dye 3	2	2050
WAYNE COUNTY—		
Kentucky-W. Va. Gas Co., Blankenship 2	¶.37	3108
WOOD COUNTY—		
Pleasant Hill Oil Co., Stilgenbauer 2	5	1760

*Failures; †Junked; ¶Million cu. ft. gas.

WILLIAM S. WELKER, 73, former drilling contractor and recently engaged in production activities around Rouseville, Pennsylvania, died March 7 at his home in Rouseville. He came to Venango County in 1890 and received his first experience in the oil fields as a rig builder with John Waitz. Surviving are his wife, one son, one granddaughter and one sister.

KENTUCKY

Company, Well and Location	Init. Prod. Bbls.	Depth
CALDWELL COUNTY—		
Hall & Booth, Franklin 1	*	1672
FLOYD COUNTY—		
Inland Gas Corp., Hopkins 197	¶.35	3098
GRAYSON COUNTY—		
Smith et al, Green Bros. 8	¶	443
HANCOCK COUNTY—		
Walker et al, Boling 5	¶.10	430
Cumberland Pet. Co., Lambert & Morris 3	*	650
LEE COUNTY—		
Willis Oil Co., Frisby 1	150	....
Garrison et al, Garrison 1	15	470
McLEAN COUNTY—		
J. C. Miller, Foley 8	75	1100
Ellis & Huff, Ditto 3	50	965
OHIO COUNTY—		
Teller et al, Whitehouse 12	100	633
Rex-Pyramid Oil Co., Wells 3	5	622
Damron et al, Logan 3	*	....

PENNSYLVANIA

Company, Well and Location	Init. Prod. Bbls.	Depth
BEAVER COUNTY—		
Braden & Herron, Bell 1	1	1305
WASHINGTON COUNTY—		
V. D. Behm, Amos 1	¶.20	2670

*Failures; †Junked; ¶Million cu. ft. gas.

ILLINOIS DEVELOPMENTS

Development of shallow Centralia will be rapid

Olney, Illinois.—Rain in Southern Illinois bogged down operations to almost a standstill in many sections of the basin area, but in the new Centralia field operations jumped from 17 to 30 during the past week.

Development of Centralia will be rapid, only about 60 hours drilling being necessary to reach the shallow production. John Pugh's Copple 1, the first townlot well brought in, pumped 170 barrels from the Benoist sand during its first 11 hours. The city council last week received a cash bid of $32,000 for the oil and gas lease on Centralia's 40-acre park. Other bids offered $20,000 in cash, plus $25,000 to be paid out of oil production; $50 an acre for the lease plus the first well, while still others offered to give the city 50 percent of all oil proceeds. Officials announced that business and labor leaders would be consulted before the lease is awarded.

Fayette Wildcat Flows

In Northeastern Fayette County, Farrelly et al's H. E. L. Lilley 1, Section 16-8n-3e, Louden Township, poured oil over the derrick floor and onto the ground when unexpected production came in from 1524 feet, Stein sand. Saturation was first encountered a week ago at 1498 feet and pipes and tanks were being rushed into place as the week closed. Nearby, the Carter Oil Company, which holds a large block of leases in the area, brought in F. R. Dove 1, Section 15-8n-3e, Louden Township, with an initial of 177 barrels daily.

Casey-Edwards Oil Company's A. T. Porterfield 1, Section 9-17n10e, Raymond Township, stopped drilling at 1065 feet because of inability of equipment to go deeper. Future plans for the wildcat are being withheld pending a report of University of Illinois engineers on a gas flow encountered at 445 feet. Meanwhile, Frank Mumford, Martinsville contractor, started a new test on the Henry Mohr farm, 5½ miles south of Sidney and just south of the Portefield test.

In Edgar County, J. M. Huber Corporation is planning seismograph tests of a 7000-acre block northeast of Paris in Hunter Township, and may drill a test on the acreage this summer.

Kennova Oil Company's Bright 1, Section 21-1n-5e, Orchard Township, Wayne County, dry at 3200 feet, was being abandoned. In Big Mound Township, to the south and east, The Texas Company's Silverman 2 was setting casing on saturation. When completed this well will give the company two producers in a large block.

Illinois furnishes Pure second best field

Chicago.—The Pure Oil Company, in its annual report issued here last week, predicted that ultimate recovery from the company's Illinois holdings would be much larger than Pure Oil has received from any of its properties with

the single exception of the Van field of Texas.

The report, which detailed the company's 8-year search for crude in the Sucker state, declared total net production for 1937 was 20,308,000 barrels, 100,000 barrels less than was produced in 1936.

"As a result of a survey and study extending over eight years, the company acquired 283,000 acres of leases in Clay, Jasper, Richland and Wayne counties in Southern Illinois," the report declared. "The first well drilled on this acreage reached a producing sand in March, 1937, and was a small producer, as was the next completion. On May 23, 1937, the third well, the Bunny Travis 1, was completed at a depth of about 3000 feet, and its initial production was approximately 2600 barrels per day. At the time of writing this report, the company had completed 130 producing wells, and since the date of the discovery well, has recovered 2,850,000 barrels of oil.

Large Reserve Indicated

"The present production is from a limestone formation, and the gas volume and pressures are not high. The first few weeks of decline from the first day's production is usually rapid, but when wells are put upon the pump, production is maintained remarkably well. The prospects are that the daily rate at which the oil can be withdrawn will not be very high, but that ultimate recovery from this Illinois property will be much larger than the company has ever received from any of its discoveries, with the single exception of the Van field (in Texas). It is too early to make any accurate estimate of the total reserves, but at this time the company's engineers feel that the operation of the property now explored has reserves in excess of 100,000,000 barrels."

Also mentioned in the report was construction during the past year of 47 miles of 8- and 10-inch pipe line from the newly opened area to a connection in the Iillinois pipe line at Martinsville, Illinois.

Austin.—The Texas Railroad Commission has postponed until April 11 its hearing on the Withers field, Wharton County, which has ben scheduled for March 10. The purpose of the hearing is to fix operating rules in the area.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Pure, Mitchell 1	190	3000
Brissenden 3	165	3050
CLINTON COUNTY—		
Conray et al, Barth 1	130	1394
Santa Fe O&G Co., Robbin 3	75	993
JACKSON COUNTY—		
Stanolind, Leiner 1	*	4200
MARION COUNTY—		
John Pugh Drilling Co., Copple 1	396	1376
MONTGOMERY COUNTY—		
Bill Casseday (Sigel & Schlosberg) Neiman 1	*	849
RICHLAND COUNTY—		
McGinley & Ponting (Wright Oil Co.), Toliver 1	400	2955
Pure, Montgomery A 4	97	3000
Frost 3	81	2960
Gulf, Hill 1	*	3158
WABASH COUNTY—		
H. T. Martin, Wood 1	*	2048

*Failures; †Junked; ¶Million cu. ft. gas.

Cole Creek, Wyoming, wildcat testing oil shows.

* * *

Testing Kansas City lime in Colorado wildcat.

Casper, Wyo.— General Petroleum Corporation Tuesday disclosed formation data on Government 1, CNW SE 21-35n-77w, Cole Creek wildcat, 13 miles northeast of here, for the first time in the past 3 weeks since it has been at critical depth. It topped the first Wall Creek sand of the Frontier formation at 6685 feet and cored oil saturation to the base of the First Wall Creek at 6840 feet where hole bottoms. An electrical survey showed highly porous zones interspersed with several tight zones varying from 2 feet to several feet in thickness. The 8⅝-inch casing was cemented at 6680 feet, and well is shut down waiting on cement to set. Operators expected to drill-in and test late in the week.

Cole Creek structure is located 8 miles southwest of the Stanolind Pipe Line Company's trunk pipe line from Teapot, Wyoming, to Freeman, Kansas, 7 miles north of the Chicago & North Western, and C. B. & Q. railroads, and 11 miles east and north of the White Eagle Division refinery, a 7500-barrel plant at Casper. General and White Eagle are subsidiaries of Socony-Vacuum Oil Company. General holds 17,000 acres in a unit block embracing the structure.

Three Lance Creek wells were at critical depths this week, principal of which is C. L. Price's Lamb 1, NE NW NW 7-35n-65w, which apparently will extend Leo sand limits of the field a quarter mile west. The well cored 6 feet of saturated Leo sand from 5382 feet to 5388 feet, and is drilling plug with the 7-inch production casing cemented on top of the sand.

Continental Oil Company's Apex 1-Account 3, SE SE NE 34-36n-65w, in the other extremity of the field, and a northeast offset and inside location to the Leo discovery, is cementing 7-inch production casing at 5440 feet, after coring four feet into saturation with total depth at 5444 feet. Continental's Dielman 3-A, SE SE SW 5-35n-65w, an outpost well on the southeast side of the field, tested water in the basal Sundance at 4073-4130 feet, and is drilling for its objective, the Minnelusa series. Continental's Joss 5, SW NE 6-35n-65w, is rigging rotary.

Argo Oil Corporation's Ford 6, SW NW 33-36n-65w, an outpost well on the northeast side of the field, is coring in the Leo sand at 5312 feet in saturation near the base of the Leo sand. The well topped the Leo at 5284 feet and apparently will make a good producer. Argo's Ford 5, SW SE 33-36n-65w, has derrick up and is waiting on rotary from Ford 6.

Wildcat Makes Heavy Oil

G. R. McConnell's Thomas 1, NW SE 6-15n-76w, a wildcat on the Big Hollow structure, Albany County, south central Wyoming, was reported this week for a small completion of heavy oil. It is reported pumping 25 barrels daily of 21 gravity oil from the Muddy sand at 890-920 feet. The well drilled to 1065 feet and developed water in Dakota and Lakota sands, and cemented back to 880 feet and redrilled for a successful completion in the Muddy. Operator expects to drill several more shallow wells to define the pool at Big Hollow.

Another Albany County wildcat at critical stage is Wyco Oil Company's Chappell 3, NE NE NW 33-21n-76w, East Rock River, which tested a hole full of water in the Lakota sand after gun perforating at 1890 feet. Recementing up the hole, it will perforate opposite the Dakota sand at 1762 feet. The 4¾-inch casing is set on bottom at 2546 feet.

In the Big Medicine Bow field, Carbon County, operated by Ohio Oil Company which holds an undivided half interest in acreage with The California Company, Union Pacific Johnson 6, SW SE 23-21n-79w, made a disappointingly small gas well in view of other completions in the field. The well gauged 1,500,000 cubic feet daily from the First Sundance at 5330-50 feet, after back-up from water in the Second Sundance at 5777 feet. The discovery well at Big Medicine Bow made the largest high gravity crude producer when in 1935 it completed for 8360 barrels of 64 gravity oil and 81,000,000 cubic feet of gas daily from the First and Second Sundance sands. Kyle 4-A, NE NE 26-21n-79w,

MOUNTAIN STATES
Completions

WYOMING

Company, Well and Location	Init. Prod. Bbls.	Depth
NIOBRARA COUNTY (Lance Creek)—		
Ohio, Converse Sheep Co. 8, cnw se sw 32-36n-65w	¶1½	4994
SWEETWATER COUNTY—		
Mountain Fuel Supply Co., Agnes Fay 1, ce ne se 18-18n-103w	¶½	2506
WASHAKIE COUNTY—		
Lewis Storm et al, Government 1, se sw 30-48n-90w	*	2602

*Failures; †Junked; ¶Million cu. ft. gas.

on the discovery lease at Medicine Bow, is drilling plug with the 7-inch casing set at 5415 feet on top the Sundance with total depth at 5464 feet. Cores indicate it will make an oil producer.

Sinclair - Wyoming Oil Company's Muskrat 2-B, NW NW NE 4-33n-92w, projected deep test of the Muskrat gas field for the Madison lime, is coring at 4143 feet in the First Wall Creek, feeling ahead for the normal gas saturation. The sand was topped at 4143 feet.

Deepen Depleted Producer

California Exploration Company is drilling plug in Government 1, NE SE NE 12-44n-97w, only producer completed on the Waugh Dome in Hot Springs County, Wyoming, to deepen from plugged depth of 3807 feet in the Embar for the Tensleep sand. The well recently turned to water. It had produced 204,000 barrels of 27.2 degree gravity oil in the three years it has been on production.

Clifford S. Johnson has started an important deep test of the old Torchlight field, which is projected for the Madison lime. The test is Johnson 1, E NW NW 24-21n-93w, Big Horn County, northern Wyoming.

In the Elk Basin field, Park County, side, Ohio Oil Company's Mack 4-OPC-4, SE SW SE 30-58n-90w, is testing gas in the Frontier sand at 2850 feet after backing up from the Dakota at 3092 feet where it failed to respond commercially. A northwest extension test to Elk Basin, on the Carbon County, Montana, side of the field, Sha-Wa Petroleum Corporation's Government 2, SW SW NW 35-9s-23e, is cementing back from 3123 feet where 600 feet of fluid rose in the hole from the bottom of the Dakota. Cement plug will be run to 3036 feet, and the upper section of the Dakota which showed oil and gas saturation will be tested.

Gulf Oil Corporation's Larsen-Union Pacific 1, CSE NW 13-13s-94w, on company's 26,000-acre Kit Carson Block, Cheyenne County, eastern Colorado, and 40 miles west of the Kansas line, drilled 6 more feet of lime formation to 4813 feet and is reacidizing. The lime topped at 4808 feet has now been identified as the Kansas City lime, and not the Shawnee member as first thought.

W. GUY SINCLAIR, scout for Gulf Oil Corporation in the Wichita Falls district, spent several days in the Fort Worth division office the past week. Sinclair is the senior scout in North Texas, and in recent years has been designated as the bull scout by co-workers.

CALIFORNIA FIELDS

Field operations getting back to normal after big flood.

* * *

World's record hole depth advanced to 14,111 feet.

* * *

See price cut unless production is sharply curtailed.

Los Angeles.—With weather conditions returning to normal and communications being restored throughout the state, oil men are endeavoring to adhere to the production schedules laid down for them by the Central Committee of California Oil Producers.

Although abandonment is apparently slated for Continental Oil Company's KCL No. A-2 world record deep hole searching for commercial production near Wasco, Kern County, this project continues to make core recoveries and is below 14,111 feet.

Nothing definite has been released by company officials as to abandonment. They will not admit failure unless mechanical problems arise. No oil-gas showings are being cored at present depth.

Down to 13,312 feet, 137 bits have been used to drill this record hole. This number includes rock head cores, wire line cores and other types of bits needed. The last core recovered disclosed the formation to be of silt stone, devoid of oil or gas showings. Showings returning a fair cut were encountered higher in the hole, but apparently insufficient to justify a production test. Temperatures at the bottom of the 6-inch hole is better than 225 degrees.

Experts, who have been closely following the oil business, predict that a price cut is on the way because of the excess production that is pouring from the Wilmington field. In fact, the threat of reduced prices was heard over the week-end when prominent producers failed to push through a regulatory measure devised to control the crude production of more than 60 fields. Failure of the movement, according to well informed sources, will mean rigid curtailment, or a price cut.

Headway on curtailment is indicated with the report that the state's yield has dropped to 709,300 barrels daily, having previously skyrocketed to more than 740,000 barrels daily. Wilmington field dropped from a high of 123,700 barrels daily on February 24, to 95,700 barrels daily, a fair indication that operators there are willing to abide by the conservation program in order to benefit from current market prices for crude.

California oil fields produced 22,008,235 barrels during January, an average of 709,943 barrels daily, representing an increase of 4973 barrels per day over December production. Total stocks of crude and all products in Pacific Coast territory increased during the month 4,643,506 barrels. The total stocks at the end of the month were 132,683,753 barrels.

Completions during the month were 119 wells with an initial yield of 85,446 barrels, compared with 81 wells completed during December with an initial production of 33,406 barrels.

Due to the increased number of permits for new wells at Wilmington,

CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BELRIDGE—		
Texas Co., Martin 1, 22-27-20	400	8480
EL SEGUNDO—		
Standard, Refinery 7	1118	7330
LONG BEACH—		
Sunset Oil Co., Whitney 1	201	3092
SANTA MARIA VALLEY—		
Union, Squires 20	214	4300
Joseph Anderson, A&T 1	400	5330
F. E. Jones, Wisconsin-Waddell 1	200	4600
Pacific Western Oil Co. Hobbs 11	490	4471
TEN SECTION—		
Shell, KCL B-52	310	8160
TORRANCE—		
M & M Oil Co., No. 1	150	5131
Woolner Oil Co., No. 5	140	5019
WILMINGTON—		
Bankline Oil Co., UP (LB) 5	5759	3888
Brookline Oil Co.	620	3665
Pongrantz Pet. Co., Gilmore 2	635	3659
Union Pacific, UP (LB) 48	614	2968
UP (LB) 49	2450	3982

*Failures; †Junked; ¶Million cu. ft. gas.

H-K CLINOGRAPH
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there is reason to expect that a greater list of completions will be recorded during February and March, with a corresponding increase in production.

Commercial production from the Kern River series, which corresponds with the Chanac zone in the Mountain View oil field, is being sought near the Edison field, Kern County, by Wood-Callahan Oil Company. The operator's Porter 1, east of Edison, is coring below 3000 feet and will be cored every foot of the way down to approximately 4500 feet before a production test is attempted. The company controls 500 acres in community leases, in addition to substantial producing acreage at Mountain View, Signal Hill and Venice.

Neal H. Anderson, former oil umpire, has completed his No. 4 at Torrance for an initial production of 180 barrels daily, with bottom at 5000 feet.

South of Santa Monica, The Texas Company has acquired approximately 500 acres for oil exploration. The company will drill its first test near Morningside and Glyndon streets, the objective being to test the saturation in the conglomerate overlying the schist. For months, operators who developed commercial production in the Venice-Playa del Rey fields were puzzled when the drills penetrated the schist formation, and almost always considered this formation as being unproductive. However, in recent months, that has been disproven.

Although it is the first well to develop oil at Semi Tropic Ridge, an important gas producing field, Standard Oil Company may abandon Randolph 1, that is capable of producing around 50 barrels daily from 7630 feet. This is the first oil to be produced from the Pliocene formation. Nevertheless, despite its apparent poor showing, it ultimately will encourage operators to drill new tests.

The Rio Bravo field may be the scene of Superior Oil Company's newest completion. Seven-inch casing is standing cemented at 11,246 feet in the company's Wagner 1, with top of the oil sand at 11,247 feet. Situated one location southeast of the discovery well, Union Oil Company's KCL 1-34, Wagner 1 is important from a standpoint of extending the field.

For purposes of developing an extension to the Greeley field, Shell Oil Company will drill a test some distance east of the field. This new project will go down in the southeast corner of 16-29-26, and lies just west of Mohawk Petroleum Company's Nord lease.

A refinery will be constructed shortly by the Van Fleet-Poole interests to care for the heavy oil being produced in the Oxnard field. This new unit will be constructed on the El Rio Oil Company's lease and be ready for operation by May 1.

Randon Petroleum Corporation of San Francisco, has announced intentions of drilling a shallow well in 3-26-20, Lost Hills field.

National Oil Company headed by Ross McCollum, will drill another well on the recently acquired Hugh B. Evans property at Hovey Hills, Kern County. This project, No. 18, will go down in the east-quarter corner of Section 35-32-23. McCollum organized National Oil Company four years ago and launched a drilling campaign at Kern Front and has developed substantial production.

Drilled for the joint account of Petroleum Securities Company, Seaboard Oil Corporation and Honolulu Consolidated Oil Corporation's Getchell 2, wildcat 12 miles east of Coalinga, is developing into the most interesting well in the state. According to field reports, although not officially confirmed, the drill has passed out of a thick body of Kreyenhagen shale and into a well-saturated body of Eocene formation. It apparently is anybody's guess what will be penetrated below the Kreyenhagen, but geologists declare that if the drill picks up the Eocene, a new oil field will be discovered. This would be important, for the three companies control upwards of 3000 acres, with Standard Oil Company holding a large block nearby.

The fact that the companies financing this wildcat have already made plans for the orderly development of the acreage involved, shows that they are extremely confident of finding something worthwhile.

Another possibility cropped out to the effect that Petroleum Securities Company might go back into the old Ladd 1, which prospected to 6600 feet, only 3 miles south of Getchell 2. The Ladd well did not core the Temblor zone, which indicates that the Getchell well is higher structurally.

The City of Long Beach, for many years in the lap of luxury due to receiving royalty payments from oil companies for the privilege of exploring city property, has gleaned its first oil royalty from its municipal lands in the Long Beach harbor oil field (Wilmington) due to the completion of Westgate-Greenland Oil Company's No. 1. This project swabbed in for 4300 barrels daily, but is believed capable of developing a potential exceeding 8000 barrels daily. The well is located on 5 acres just east of the Long Beach harbor entrance. The company is slated to complete its No. 2 nearby this week, and within a week expects to have on production all 4 of the wells authorized for this small lease. Curtailment regulations in the harbor strip call for pinching back of wells to 2000 barrels each. The city of Long Beach gets one half the oil and gas.

Two wells in the Greeley field, Kern County, are expected to produce almost pure gasoline. Both belong to Standard Oil Company, and are situated in Section 20-29-26, where similar wells capable of yielding high gravity crude have been completed. According to reports this crude may be used at once as fuel by motor cars.

Los Angeles.—Costing about $2,300,000 each, two new high pressure turbine tankers will soon be under construction at the yards of the Bethlehem Shipbuilding Corporation, Sparrows Point (Md.) for Socony-Vacuum Oil Company, Inc., according to an announcement here by General Petroleum Corporation. These new carriers will embody in their design all of the latest proven developments in both engineering safety-at-sea and fireproofing equipment.

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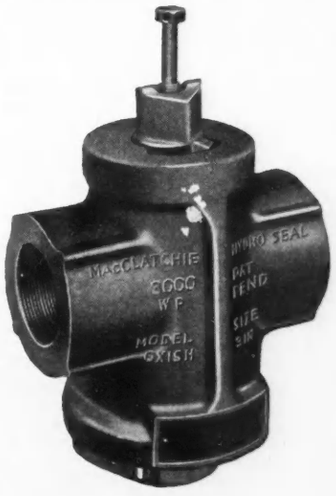

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ARKANSAS

CALHOUN COUNTY — J. R. Lockhart's Hearnes Berger 1, 16-11-13, spd.

CLAY COUNTY — Canadian American Oil Co.'s Smith 1, c ne nw 9-20-8, elev 375 ft, top Nacatosh 800 ft, sd 1005 ft shale.

CLEVELAND COUNTY—Marwick & Olds' Aubrey Vance 1, nw nw 18-11-11, elev 241 ft, Nacatosh 2809-63 ft, sd 2901 ft.

CRITTENDEN COUNTY — Manning & Martin's Cartwright 1, se nw sw 16-7n-8e, sd 4230 ft, sand and shale.

COLUMBIA COUNTY — Kerr-Lynn Oil Co.'s Barnett 1, se sw ne 14-17-20, elev 321 ft, top Permian lime 7618 ft, cored sat. lime 7659-64 ft, set 7-in csg at 7051 ft where it hung, flowed oil 30 minutes, si for storage, td 7740 ft. Standard of La.'s Bodcaw Lbr. Co. 1, c se ne 18-16-22, elev 253 ft, base massive anhydrite 3422 ft, top Travis Peak 4312 ft, fsg 7226 ft; Crone 1 (formerly D. E. Thomas 1), c nw se 8-16-22, elev 271 ft, top anhydrite 3288 ft, dr 7172 ft; W. P. Phillips 1, se 15-17-19, dr 3973 ft. E. O. Olds' Mary Dennis 1, nw se sw 4-17-21, elev 296 ft, wodd, td 4513 ft.

DESHA COUNTY—Columbian Fuel Corp.'s Victoria Cross 1, sw sw 34-8s-3w, woc surf csg.

HEMPSTEAD COUNTY—Easton, May & Murdock's R. M. LaGrone 1, ne ne 5-12s-26w, pb to 1000 ft, sdtr 1690 ft.

JOHNSON COUNTY—Ark. La. Gas Co.'s Hudson 2, se nw 14-10-24, mim.

LA FAYETTE COUNTY—L. E. Tennyson, Jr.'s Fee 1, sec nw ne ne 13-16-23, lcn abn.

LINCOLN COUNTY — Fitzwater, Inc.'s Bowens 1, nw sw ne 26-9-6, sd 1130 ft.

LITTLE RIVER COUNTY—Henan & Coe's W. D. Waldrop 1, woc 10-in surf csg. J. G. Strahan et al's Dierks Lbr. Co. 1, sw se 21-12-28, coring 2320 ft.

LONOKE COUNTY—J. W. Eddington et al's Anderson 1, nw ne 7-4-9, sd 85 ft.

MILLER COUNTY—F. F. Earles' General American 1, sec sw 20-14-26, lcn under water.

UNION COUNTY—E. G. Bradham's S. L. Robbins 1, sw ne 12-19-16, elev 214 ft, cored sandy marl show sw 2159-75 ft, sd 2300 ft, contract depth.

ALABAMA

CHOCTAW COUNTY—Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, elev 120 ft, owdd, td 7520 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, se nw sw 9-3n-29e, sd 4975 ft.

MOBILE COUNTY — Grand Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, rur. J. C. Prine's King 2, ne ne 4-1n-4w, elev 135 ft, 10-in csg 300 ft, sd for 8-in csg 1100 ft (1100 ft s of No. 1).

COLORADO

CHEYENNE COUNTY—Gulf Oil Corp.'s Union Pacific-Larsen 1, cse nw 13-13s-49w, acidizing 4818 ft, so.

LOGAN COUNTY—Transylvanian Development Co.'s Sheldon 1, se nw se 3-10n-55w, rur.

MONTEZUMA COUNTY — Perry Coon's West 1, se nw ne 31-36n-17w, dr 4100 ft.

PUEBLO COUNTY—Ed Solomon's Smith 1, ne 11-21s-60w, rust.

ROUTT COUNTY—Mid-Colorado Petroleum Co.'s Omholt 1, ne ne se 29-4n-87w, dr Morrison 3120 ft. Major Oil Reserve of Colorado, Inc.'s Fee 1, sw nw 17-6n-86w, mim.

MONTANA

CARBON COUNTY — Miracle Oil Co.'s Government 3, cwl ne se 3-6s-23e, dr 2371 ft.

LEWIS & CLARK COUNTY—Coulter & Moore's Fee 1, nw nw sw 11-18n-5w, dr 1906 ft in Lower Kootenai.

YELLOWSTONE COUNTY — Broadview Dome Oil Co.'s Halbritter 1, ne ne sw 18-3n-23e, dr 4573 ft, Madison lime. R. C. Tarrant's No. 1, csl se nw 3-6s-18e, first report, Roscoe Dome, rust.

UTAH

GRAND COUNTY—Cane Creek Oil Co.'s Government 1, nw sw 31-26s-21e, dr 1000 ft. Columbia Crude Corp.'s Rath-Government 1, ne nw 12-25s-20e, dr 3390 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls.—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
bs—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so&g—*show oil and gas.*
fsg—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

WYOMING

ALBANY COUNTY — G. R. McConnell's Thomas 1, nw se 6-15n-76w, completed 25 bbls daily 21 degree gravity oil Muddy sand 890-920 ft after pb from 1065 ft water in Dakota. Wyco Oil Co.'s Chappell 3, ne ne nw 33-21n-76w, water at 1890 ft, perforating casing in Lakota sand, cementing up hole and will perforate in Dakota, 1762 ft with 4¾-in csg set on bottom, 2546 ft.

CARBON COUNTY—Italo Petroleum Corp.'s Tunney-Bragg 1, ne se nw 11-26n-81w, dr 1325 ft.

FREMONT COUNTY—Stanolind Oil & Gas Co.'s Johnson 1, cse se 3-33n-96w, dr 8075 ft.

NATRONA COUNTY—General Petroleum Corp.'s Government 1, nw nw se 21-35n-77w, woc 8⅝ in csg 6680 ft, top First Wall Creek sand with saturation cored to base first sand 6840 ft.

WESTON COUNTY—John Brorby's George 1, sw se nw 12-47n-64w, dr 1995 ft.

CALIFORNIA

CIERVO—Superior's Ciervo Unit Plan 1, 20-16-13, dr 5392 ft.

CLOVIS—Central Valley Oil Co.'s No. 1, 1-12-20, sd 511 ft.

COALINGA—J. M. Conlon's No. 1, 25-19-14, sd 100 ft. Petroleum Securities Co.'s Gatchell 2, 18-20-16, dr 6263 ft. Shell's No. 36-1, 36-19-14, rig; Conlon No. 1, 30-19-15, dr 2483 ft.

JACALITOS HILLS—Jacalitos Pet. Co.'s No. 1, 14-21-15, rdr 5743 ft.

PANOCHE HILLS—Panoche Hills Oil Co.'s No. 1, 12-14-11, rig.

ARVIN—General's Pauley 1, 22-31-29, sd 500 ft. Petrex, Inc., Petrex 1, 32-31-30, fsh 3625 ft. Union's Berry 1, 15-31-29, dr 3727 ft, sandy shale.

BELLVIEW—Continental's KCL No. D-1, 10-30-26, dr 7611 ft. Superior's KCL No. 9, 3-30-26, rdr 7526 ft.

BELRIDGE—General's St. Helens 1, 12-28-20, fishing bit, 8128 ft. Shell's Voight 1-1, 32-27-20, dr 615 ft.

BUENA VISTA LAKE—Ohio's KCL A-8, 32-31-26, dr 8427 ft.

DEVILS DEN—Amerada's Beer No. 5, 22-26-19, running csg 6803 ft. Gibson Oil Co.'s Alferitz 3, 14-25-18, sd 80 ft.

EDISON—British Cons. Oil Co.'s No. 1, 11-30-30, sd 50 ft. Wood-Callahan Oil Co.'s Porter 1, 20-30-29, dr 2855 ft, sand and shale.

FRUITVALE—Shell's KCL A-58, 29-29-27, dr 5653 ft gr sand and shale.

GRAPEVINE-WHEELER RIDGE — Richfield's KCL 1, 28-11-20, rig. Universal Cons. Oil Co.'s No. 1, 33-11-19, pumping 250 bbls, 60 percent water, 4988 ft.

POSO CREEK—Harkness & Laws, Hunt 1, 28-27-27, material.

TEMBLOR HILLS — Chico Martinez Oil Co.'s Exeter 1, 1-29-20, co 1065 ft.

WASCO-SEMITROPIC RIDGE—Standard's Randolph 2, 14-27-23, td 7400 ft, swabbing 15 bbls 34 hrs.

PYRAMID HILLS — Pyramid Prod. Co.'s Retherford 1, 27-24-18, td 2503 ft, gr sand and shale.

BELLFLOWER—G. L. Clayton's Scott 1, 32-3-12, td 6247 ft, to deepen.

CASTAIC—Royal Land Corp.'s No. 1, 8-4-17, dr 312 ft hard shale.

PICO—A. S. Johnston's No. 32, 5-2-11, dr 3420 ft hard conglomerate.

TOWSLEY CANYON—Towsley Canyon Oil Co.'s Hammon 1, 8-3-16, sd 4100 ft.

WHITTIER—Fullerton Oil Co.'s Whittier 5, 25-2-11, material.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, pb to 2600 ft, temp. abn, old td 6126 ft.

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, sd for drill pipe, td 2620 ft.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw ne se 19-4n-24e, elev 110 ft, cemtd off caving hole at 3935 ft, woc.

POLK COUNTY — Edw. A. Hill's Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk.

SUWANEE COUNTY—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, sd for heavier rig, 200 ft.

ILLINOIS

BOND COUNTY—Universal's Molden 1, nw nw nw 24-6n-4w, sd 2045 ft. Whitehead's Pollan 1, nw se sw 26-6n-2w, ur 6-in csg. McBride's Butler 1, nw sw se 30-4n-2w, dr 1345 ft. Rigall's Neillson 1, ne ne nw 32-5n-4w, lcn.

CLAY COUNTY—Bonnie Oil's Schnautz 1, se sw ne 31-4n-8e, cor 3036 ft. Wicklund's McCauley 1 "A", ne sw nw 7-2n-9e, der. Campbell's Henderson 1, cn½ ne ne 7-4n-7e, c&p. Carter's Cox 1, ce½ se sw 14-4n-5e, dk.

CLINTON COUNTY—Dalton's Clifton 1, ne sw sw 15-1n-4w, sd 1535 ft. Ellsy's Williams 1, sw nw sw 1-3n-1w, der. Schlosberg & Siegel's Monken 1, ne sw sw 4-2n-1w, ur 6-in csg 1468 ft. Watkins & Wright's Wise 1, nw nw se 24-1n-3w, mim. Holley & Willis' Hughes 1, cn½ ne nw 18-3n-2w, dr 1395 ft. Noll & Conrey's Barth 1, nw se sw 12-1n-1w, td 1393 ft, testing. Gross' Eversgerd 1, sw nw sw 22-1n-4w, woc 921 ft. Lilly's Siegler 1, nw ne ne se 12-1n-1w, dr 1150 ft. Brookside Oil's Dodillet 1, sw sw nw 21-1n-1w, ur 6-in csg. Thompson-Self's Hanseman 1, se nw ne 12-1n-1w, cor at 1310 ft. Penn-Illinois Oil's Molan 1, sw sw sw 28-2n-1w, brr.

COLES COUNTY—Miller's Tomberlin 1, se se se 21-11n-10e, spd and sd. Hughes' Swango 1, csw ne 27-13n-9e, sd 903 ft. Stipes' Millage 1, cnl ne se 5-11n-10e, spd and sd.

CUMBERLAND COUNTY — Jolly-Hill-Stipes' Jenkins 1, se ne ne 30-10n-9e, sd 2130 ft. Nat'l Consumers' Vanderhuff 1, nw ne nw 19-9n-9e, mog.

EDWARDS COUNTY—Cotton & Laller's Hays 1, ne ne ne 4-1s-10e, lcn.

EFFINGHAM COUNTY — Kingwood & Carter's Bartel 1, ce½ ne nw 26-6n-5e, td 4102 ft, testing. Kingwood's McWhorter 1, ce½ se nw 15-6n-6e, dr 1500 ft. Graham-Duncan's Richers 1, cn½ se nw 18-6n-7e, spd 35 ft and sd. Kroger's Shoenhoff 1, se nw sw 5-8n-7e, spd and sd. Obermeyer's Atkins 1, nw nw ne 3-6n-9e (owdd), otd 260 ft, dr 265 ft.

FAYETTE COUNTY — Carter's Miller 1, cw¼ nw nw 12-8n-3e, td 3170 ft. Farrely's Lilly 1, se sw se 16-8n-3e, ur 8-in csg. Wilson & Stokes' Fee 1, nw sw ne 14-8n-3e, lcn. Greer's Metzger 1, cn½ ne nw 19-5n-2e, der. Ryan & Redgraves' Jones 1, cs½ ne 24-9n-1e, td 1850 ft, abd.

FRANKLIN COUNTY—Washburn's Neil 1, ce½ se se 6-5s-4e, td 2600 ft.

JACKSON COUNTY—Stanolind's Leiner 1, se se nw 20-7s-4w, td 4144 ft, abd.

JEFFERSON COUNTY—Sturbois & Tomberlin's Osborne 1, cnw se 8-2s-2e, dr 2085 ft. Nollen & Benoist's Kelley 1, ne nw ne 25-4s-2e, td 2610 ft, lowering 6-in csg. Dee's Hamilton 1, ne sw nw 20-4s-3e, td 2911 ft. Sturbois & Tomberlin's Morris 1, nw nw sw 6-2s-2e, td 2467 ft, abd. Myers Bros.' Duckworth 1, ce½ sw ne 33-4s-4e, rig. Dee & Foltz' Hamilton 2, sw sw nw 20-4s-3e, set 10-in csg 44 ft, dr

plugs. Carter's Douthitt 1, ce½ ne se 9-1s-2e, td 1962 ft, IP 147 bbls oil and 12 bbls wtr, comp. Hausman's Myers 1, nw nw sw 7-1s-3e, mim. Foltz' Carroll 1, ne ne se 16-2s-1e, mim.

JERSEY COUNTY—Boyd's Wyman 1, nw se nw 32-7n-12w, sd 930 ft.

MARION COUNTY—Siegel & Schlosberg's Roddy 1, sw se sw 20-2n-3e, sd 2182 ft. Marion Oil's Wilson 1, ne ne se 18-3n-3e, sd 1475 ft. Hackman & Harris' Britt 1, nw nw nw 36-4n-1e, sd 1050 ft. Mahutske Oil's Nichols 1, se sw se 12-4n-4e, pb to 2755 ft, woc. McBride's Clow 1, sw sw se 29-2n-1e, td 2001 ft, abd. Dalton's Ira Dalton 1, nw se ne 19-1n-3e, sd 90 ft. Oil Royalties' Suggs 1, csw nw nw 11-2n-1e, ru mach. Coyer's Mulvaney 1, se ne se 6-2n-4e, der. Shedden's Rawlica 1, sw ne sw 33-2n-1e, rur. Thompson's Baker 1, sw nw sw 9-1n-1e, mirt.

MASSAC COUNTY—Kahle's Harvick 1, sw sw sw 23-14s-3e, dr 2870 ft.

MONTGOMERY COUNTY — Myer's Klekamp 1, sw sw se 29-8n-5w, mach.

POPE COUNTY—Whitlock's Anthis 1, nw nw ne 12-11s-5e, dr 1425 ft.

RANDOLPH COUNTY—Delaney & Mabee's Wilson 1, ce½ se ne 3-4s-5w, dr 3532 ft. Pioneer O&G Co.'s Johnie 1, se nw nw 28-6s-6w, sd 567 ft. Bremen's Wilson 1, se se se 22-6s-6w, spd and sd.

RICHLAND COUNTY — Mammoth's McCauley 1, sw se nw 28-3n-9e, co 3146 ft. Anderson & Cunningham's Franklin 1, nw nw ne 34-5n-10e, spd. Parker's Berry 1, se sw ne 22-2n-14w, spd and sd. Miller & Ake's Schlichenmeyer 1, cne sw se 16-3n-10e, spd and sd. American Exploration's Johnson 1, cnw ne nw 29-4n-9e, rot der. Gulf's Hill 1, cn½ sw nw 2-4n-10e, sdo 3158 ft. American Nat'l Drlg's Everson 1, ne ne se 23-3n-9e, sd 1846 ft.

SALINE COUNTY—Rogers' Saylor 1, se se se 3-10s-6e, dr 1165 ft. Bolton's Beagle 1, nw nw nw 13-9s-7e, td 1871 ft, co to btm, 100 ft oih, 48 hrs, sd.

SCOTT COUNTY—Gregory & Mechling's Foltz 1, nw sw ne 31-14n-14w, sd 1196 ft. Sun Oil's Goodwin 1, cw½ ne se 22-13n-12w, mim.

SHELBY COUNTY—Breaseale's Richardson 1, cnw nw 35-12n-14w, sd 198 ft. Farrior's Smith 1, ne ne ne 1-12n-2e, lcn.

WABASH COUNTY—Martin's Wood 1, ne se nw 31-1n-12w, td 2408 ft, abd.

WARDS COUNTY—Schmidt's Strenne 1, ne nw ne 5-1n-14w, spd and sd. Leach Bros.' Lee 1, sw ne se 11-1s-10e, td 3100 ft, wo csg. Cotton's Leibke 1, ne ne sw 20-1n-14w, C&P.

WASHINGTON COUNTY — Bitterman's Jesse I, cse ne 16-3s-2w, dr 908 ft. Frost & Vicker's Frank 1, sw nw nw 28-1s-4w, sdo 937 ft.

WHITE COUNTY—Heldt's Dagley 1, sw ne sw 12-7s-9e, C&P. Hunt's Smith 1, 11-5s-8e, der.

KANSAS

BARBER COUNTY—Palmer's Warwick 1, cnw 29-31s-10w, dr 4420 ft. Carter & Wentz' Lytle 1, cne nw 6-32s-14w, dr 4133 ft.

BARTON COUNTY—Price' Hammeke 1, ne ne sw 12-18s-12w, pb to 3429 ft, testing. Martin & Foraker's Dick 1, ne sw sw 31-19s-11w, mim and sd. Shell's Ehrlich 1, sw sw sw 1-16s-14w, dd to 3296 ft, 2800 ft oih. Day's Feltes 1, se se ne 14-16s-12w, sd 1875 ft. The Texas Co.'s Lowry 1, cnl nw sw 2-17s-13w, td 3362 ft, abd. Murfin's Rexroot 1, nw nw se 14-17s-13w, rig. Crown Pet.'s Schartz 1, sw se nw 7-20s-11w, fsg 1970 ft. Price' Wondra 1, nw nw ne 10-17s-13w, ru. Sinclair Prairie's Frederick 1, sw sw se 16-16s-11w, dr 2080 ft. Silverstein & George's Otte 1, se se nw 2-19s-14w, mim.

BUTLER COUNTY—Steinbuchel's Fox 1, nw se ne 25-26s-3e, sd 1010 ft. Dustin's Miley 1, se nw ne 17-27s-5e, sd 810 ft. Saco, Kansas & Gulf's Pettit 1, sw nw sw 21-28s-6e, dr 675 ft.

CHASE COUNTY—Duffy's Leedy 1, ne nw nw 26-22s-9e, sd 1515 ft.

CHAUTAUQUA COUNTY—Sooby's Davis 1, sw ne nw 29-33s-10e, sd 1504 ft.

CLARK COUNTY—Olson's Watkins 1, sw sw nw 23-32s-21w, pb to 6806 ft, woc.

COWLEY COUNTY — Brewer's McDaniels 1, sw sw sw 24-30s-4e, br. Palmer's Neimiller 1, ne ne ne 14-30s-4e, dr 2925 ft. Brewer's Clark 1, ne se nw 6-31s-4e, td 2874 ft, shot with 30 qts 2871-50 ft, swb 28 bbls oil 8 hrs. Wakefield's White 1, nw nw ne 4-33s-4e, sd 1500 ft. Milton's Milton 1, sw sw se 16-34s-5e, ponds. Bess & Gralapp's Hunt 1, cnl ne nw 18-34s-5e, mim.

EDWARDS COUNTY—Douglas & Gears' Meade 1, se se nw 35-25s-16w, sdo.

ELLIS COUNTY—Skiles' Jensen 1, sw se ne 26-12s-18w, sd 2910 ft. Duwe & Farris' Hadley 1, se ne se 12-11s-18w, woc at 3146½ ft. Bradley's Jensen 1, nw nw se 36-11s-19w, show sulph wtr. Continental's Baumrucker 1, ne ne sw 25-14s-16w, dr 3030 ft. Helmerich & Payne's Stebbins 1, nw nw se 7-13s-20w, dr 3598 ft. Twin Drlg.'s Hall 1, nw sw ne 1-12s-17w, rur. Hays & Sackrider's Windholtz 1, ne ne ne 2-13s-16w, td 3150 ft, pull big pipe. Central Pet.'s Foster 1, csl se nw 33-11s-16w, td 3465 ft, abd. Western Kansas' Cole 1, ne se se 24-11s-20w, brr. Carter's Foster 1, se se nw 1-15s-16w, set 8⅝ in csg 915 ft.

ELLSWORTH COUNTY—Colonial's Hogy 1, nw nw sw 16-16s-10w, td 3342 ft, testing. Wixon's Peterman 1, sw sw sw 28-17s-10w, td 3306 ft, 100 ft oih 2½ hrs, est ½ bbl wtr per hr.

FINNEY COUNTY—Atlantic's Nunn 1, se se ne 27-21s-34w, set 13-in csg 234 ft, woc.

GRAHAM COUNTY—Continental & Cities Service' Morel 1, cw½ e½ ne 15-9s-21w, dr 655 ft.

GRAY COUNTY — Reynolds' Watkins 1, csw 32-28s-28w, rot rig.

GREENWOOD COUNTY — Whittaker & Johnson's Cannon 1, cel se nw 8-26s-13e, td 1504 ft, rung 5-in csg. Nichols' Central Life Ins. Co. 1, sw sw se 35-25s-12e, spd and abd. Whittaker's Bressner 1, nw nw se 8-26s-13e, sd 585 ft.

HARPER COUNTY—Franklin Drlg's Walts 1, ne ne sw 24-34s-6w, sd 4185 ft.

JACKSON COUNTY—Lemmick Oil's Marble Savings Bank 1, cne ne 26-9s-14e, sd 510 ft.

JEWELL COUNTY — Hollingsworth Bros.' Wolf 1, nw sw se 14-4s-8w, sd 100 ft.

LANE COUNTY—Phillips Pet.'s Kees 1, cse se 3-19s-30w, cem cave 4893 ft.

McPHERSON COUNTY—Pulse' Boesker 1, se se nw 29-20s-1w, rig. Phillips Pet.'s Galle 1, nw nw ne 11-21s-2w, dr 3275 ft. Archer & Crane's Templin 1, nw sw se 32-17s-3w, dr 3510 ft. Darrah-Aurell's Decker 1, sw sw se 12-21s-2w, rust 2985 ft.

MEADE COUNTY—Pacific Mid-West's Rexford 1, ne se sw 8-30s-29w, sd 200 ft. Barnett's Adams 1, sw sw ne 22-34s-30w, ru.

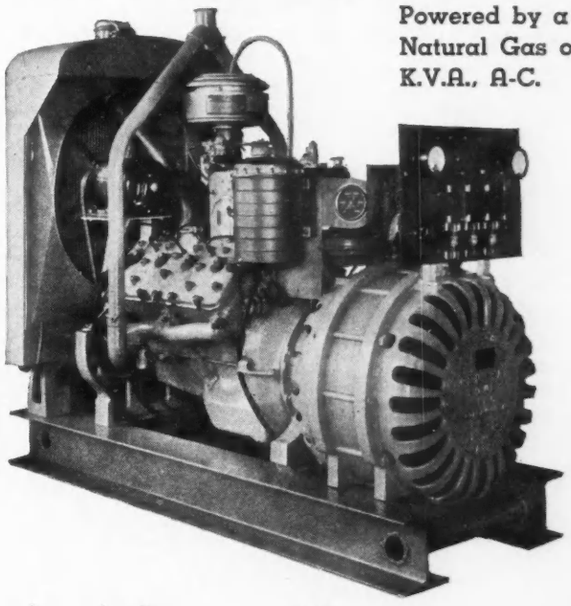
NESS COUNTY—Jones & Lane's Page Milling Co. 1, se se nw 36-18s-26w, co 3265 ft. Marshall's Anderson 1, sw sw nw 23-16s-24w, spd and sd. Trojan's Moses 1, csw nw 10-18s-25w, sd 500 ft.

OTTAWA COUNTY — Babcock's Copeman 1, cnw ne 18-10s-2w, pits.

PHILLIPS COUNTY—Davidson's Elliff 1, se ne ne 35-5s-18w, sd 600 ft.

PRATT COUNTY—Cities Service & Atlantic's Delaney 1, csl ne 13-26s-12w, dr 3740 ft.

RENO COUNTY—Schneider's Kroecker 1,



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An extremely efficient 20 K.V.A. generator, directly connected to the economical Ford V-8 engine, is an ideal unit for running oil, for running electrified pumping equipment, lighting oil field camps, drilling rigs and pumping stations, or any similar installation where continuous service is desired. The engine runs at a speed where maximum efficiency and load is secured. The unit is equipped with voltage regulator and sensitive flyball governor. Units may be operated either singly or in pairs. Unit may be had entirely enclosed with hood and side panels, and is shipped complete ready to run. Price for this type of unit is extremely low.

GENERAL POWER, INC.

QUAPAW, OKLAHOMA

ne ne ne 12-22s-5w, dr 3977 ft. Carey's McPheeters 1, ne ne nw 22-26s-8w, pull 6-in csg 3665 ft. McCole's Mathews 1, sw nw nw 15-24s-10w, dr 2600 ft. Cities Service' Kreie 1, cnw 27-23s-10w, cor 3810 ft. Amerada & Westgate-Greenland's Johns 1, se se se 25-22s-5w, surf pipe. Foulds' Ehnen 1, csl se se 33-23s-9w, ponds.

RICE COUNTY—Price' Gemeinhardt 1, ne ne se 18-18s-10w, pb to 3298 ft, Aw/2000 gals. Schneider's Sterling College 1, se sw se 28-20s-8w, rust 3377 ft. Cities Service' Habiger 1, sw sw nw 18-18s-9w, abd 3285 ft.

ROOKS COUNTY—Producers' Ham 1, sw sw nw 25-7s-19w, sd 330 ft. Graham's Fike 1, sw sw sw 9-9s-17w, sd 3384 ft. Witt & Sheridan's Morrison 1, nw se sw 29-10s-17w, rot rig. Elwell's Zimmerman 1, ne ne nw 15-9s-18w, dr 3672 ft. Duwe & Farris' Hancock 1, nw sw sw 21-10s-18w, sd 3636 ft.

RUSSELL COUNTY—Emrich's Anderson 1, ne se sw 33-15s-11w, spd and sd. Parks' Gorham Est. 1, sw nw ne 19-15s-15w, dr 1135 ft. Jones' Kuhnle 1, se se nw 4-15s-12w, sd 2005 ft. Hess' Reinhardt 1, ne ne sw 36-12s-14w, woc 3140 ft. Smith & Unruh's Stielow 1, nw nw nw 32-11s-14w, dr 2150 ft. Atlantic's Boxberger 1, ne se nw 10-15s-14w, dr 1060 ft.

SEDGWICK COUNTY — Talbott's Down Est. 1, se se nw 32-28s-2e, testing. Union O. & R.'s Howell 1, sw sw sw 6-29s-1e, set 8-in csg 2410 ft. Hudson's Fulton 1, ne ne se 35-28s-1e, dr 1738 ft. McKnabb's Garrett 1, se sw sw 18-29s-1e, hfw 2680 ft.

STAFFORD COUNTY—Terry & Feaster's Negley 1, sw sw ne 23-22s-12w, sd 3743 ft. Lindsay & Bailiere's Tiepermann 1, sw sw nw 32-22s-12w, dr 3663 ft. Cardinal & Carraker's Sittner 1, sw sw sw 4-22s-12w, td 3700 ft, swabbing. Knight's McNickle 1, se se ne 2-24s-11w, cel. Nat'l Ref. Co.'s Bonham 1, sw sw se 28-25s-12w, dr 3885 ft. Stanolind's Hill 1, ne ne sw 2-23s-12w, td 3741 ft, abd. Stanolind's Hahn 1, ne ne nw 14-22s-13w, td 3757 ft, rung 6-in csg. Rust's Krakenberg 1, sw sw sw 20-22s-12w, dr 1195 ft. Continental's Fair 1, cnl sw 12-25s-13w, set 10-in csg 441 ft. Pryor & Lockhart's DeSalms 1, ne ne ne 3-25s-11w, lcn. Fain Drlg.'s Hughes 1, se se se 13-23s-12w, dr 590 ft.

SUMNER COUNTY—Saco's Phipps 1, sw se ne 24-30s-1w, spd and sd. Jones' Stunkel 1, se se sw 2-30s-1w, rig. Shawver's Stewart 1, nw nw se 4-32s-3w, dr 4505 ft. Colonial's Miles 1, se ne ne 30-30s-4w, rot rig.

TREGO COUNTY—Carlock's Kinzel 1, sw sw sw 9-13s-22w, spd and sd. Manning & Martin's Lynd 1, nw nw sw 16-11s-21w, run 10-in csg 1680 ft.

WOODSON COUNTY—Reeser's Weide 1, nw nw se 18-25s-14e, sd 1150 ft. London & Mendenhall's Slough 1, ne ne sw 9-24s-13e, dr 2600 ft. Union Oil & Royalties' Laidlow 1, cel nw sw 35-25s-15e, dr 1200 ft.

SOUTH LOUISIANA

ACADIA PARISH—Humble's Boyd Finch 1, South Crowley prospect, 22-10s-1e, dr hard sand 8750 ft.

ALLEN PARISH — Humble's Bel 3, Bel prospect, 28-6s-7w, pumping water into sands 2736 ft.

AVOYELLES PARISH—G. C. Koch's Kelone 1, Marksville area, 21-2n-3e, dr shale 1017 ft.

CALCASIEU PARISH — Shell's Calcasieu National Bank 1, Hayes area, 18-11s-5w, sd 9000 ft. Sun's Lutcher Moore 1, Northwest Starks prospect, 1-8s-13w, ru.

CAMERON PARISH — Humble's Miami Corp. 1-B, Little Cheniere area, 7-14s-6w, coring sand 7583 ft. Superior's State 1, in Gulf of Mexico, 15s-8w, woc 6000 ft.

BEAUREGARD PARISH—Republic's Lutcher Moore 1, Bancroft area, 10-6s-13w, woc 1015 ft.

EAST BATON ROUGE PARISH—Austin B. Taylor's Duplantier 1, University Block prospect, 65-7s-1w, coring shale 5109 ft. Cavalier Oil Co.'s Elliott 1, n of Hope Villa, 3-8s-2e, abn 7685 ft.

IBERIA PARISH—Texas Co.'s State 4, Fausse Point area, 35-11s-8e, coring shale and sand odor of oil 8254 ft; same operator's Bayless & Jones 1, e flank of Jefferson Island, 58-12s-5e, coring shale 3359 ft; same operator's State 2-B, in Vermilion Bay, 16s-5e, dr shale 7289 ft.

JEFFERSON PARISH—Julius Szodomak's Carrol 1, n of New Orleans, 125-12s-11e, coring shale 505 ft.

JEFFERSON DAVIS PARISH—Stanolind's W. B. Conover 1, South Welsh prospect, 20-9s-5w, dr shale 6498 ft. Union Sulphur's Calcasieu National Bank 1, Woodlawn area, 12-9s-6w, coring shale 7468 ft.

LAFAYETTE PARISH—Continental's Foreman 1, South Scott area, 36-9s-3e, dr shale 8198 ft.

ST. BERNARD PARISH—Gulf's State RR 3, Lake Borgne area, 6-12s-15e, mim.

ST. LANDRY PARISH—Noxon & Toomb's Boagni 1, Opelousas area, 41-6s-4e, preparing to spud.

ST. MARTIN PARISH—Carter, Stewart et al's Martin 2, Section 28, 32-9s-7e, coring salt 4229 ft. Shell-Tide Water's Unit 1, West Lake Verrett area, 11-14s-12e, coring shale 9100 ft. Texas Co.'s St. Martin Land 11, Henderson area, 21-8s-7e, driving piling; same operator's State 4, Lake Mongouloi area, 14-10s-9e, sd waiting on orders 7988 ft salt.

ST. MARY PARISH—Petroleum Heat & Power Co.'s Parro 1, nw of Charenton, 9-13s-9e, sd 3009 ft.

TERREBONNE PARISH—Fohs Oil Co.'s Buckley 1, Dulac area, 77-19s-17e, dr shale 8497 ft. Same operator's State 1, La Terre area, 41-19s-19e, dr shale 7498 ft. Shell's Realty Operator's C-1, Minor area, 10-18s-16e, loc.

NORTH LOUISIANA

BIENVILLE PARISH—Gulf's Goodpine Oil Co. 1, se sw 25-14n-8w, elev 157 ft, massive anhydrite 5303-5420 ft, dr 8823 ft red and black sandy shale. DeSoto O&G Co.'s Wm. Ashley 3, c nw se 15-16n-10w, rog. Hunt-Seaboard's Hodge-Hunt 1, se nw 36-17n-6w, rog.

CADDO PARISH—Olsen Drlg. Co. et al's Sharpe 1, c nw ne 10-18n-16w, elev 265 ft, base massive anhydrite 4687 ft, base stringer 4776 ft, coring 5820 ft. A. D. Robinson et al's Dickson 1, 22-20n-14w, 5-3/16 in csg 2400 ft, dry abn, td 2805 ft.

CATAHOULA PARISH—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, 16-in csg 20 ft.

CLAIBORNE PARISH—Union Prod. Co. et al's Brownfield 2, c se nw 5-19n-5w, elev 235 ft, pb to 8850 ft, sdtr 8822 ft, old td 9964 ft. Weaver Oil Corp.'s Alex Edmonds 2, sw ne 16-20n-5w, mim.

CONCORDIA PARISH—Edw. A. Addey et al's Pasternach 1, c nw sw 49-8n-9e, woc 480 ft.

DE SOTO PARISH—Clear Lake Oil Co.'s Woolums 1, nw nw 29-12n-12w, cored sand so, arr set csg, td 2694 ft. La. Seaboard's Lawrence 1, sw ne 36-12n-14w, woc surf csg. S. S. Alexander's Stell 1, 5-12n-16w, owdd, td 6002 ft.

FRANKLIN PARISH—Southern Star Pet. Co.'s Grayson 2, sw ne 36-12n-6e, sd 1755 ft.

GRANT PARISH—C. L. Thompson's Woodard 1, ne sw 10-6n-3e, mim.

LINCOLN PARISH—E. T. Oakes, H. D. Easton et al's N. L. Griggs 1, c sw 36-18n-1w, elev 199 ft, shot formation second time at 5932-41 ft, swabbed dry, arr perf csg at 5300 ft, td 6260 ft.

MADISON PARISH—Continental Oil Co.'s Singer Mfg. Co. 1, c ne ne 3-15n-11e, mim.

MOREHOUSE PARISH—W. J. Furlong, Jr. et al's E. M. Clark 1, 10-20n-7e, elev 103 ft, top lime 6218 ft, sd 6515 ft, contract depth.

NATCHITOCHES PARISH—Jos. E. Popkins' Peavy-Wilson 1, nwc 36-7n-9w, rur.

RED RIVER PARISH—Glassell & Whitehurst's LeLong 1, ne nw ne 25-12n-11w, sd 1810 ft, repr rig.

RAPIDES PARISH—Amerada's Weil 4, 53-1s-2e, dr 6685 ft.

SABINE PARISH—J. C. Sutton Oil Co.'s Sabine Lbr. Co. 1, se nw ne 23-7n-14w, 9⅝ in csg 2132 ft, showed 1200 ft oil in 9 minutes in drill stem test 3841-53 ft (Washita), cemt 7-in csg 3840 ft, woc, td 3853 ft.

TENSAS PARISH — H. B. Schumacher's Mounds Land Co. 4, 39-11n-12e, lcn.

UNION PARISH—Joe Modisett et al's Frost 1, ne sw 14-21n-1e, elev 188 ft, top Travis Peak 4050 ft, top lower Marine 6161 ft, dr 7626 ft.

WEBSTER PARISH — Magnolia's Frank Sexton 1, c sw ne 32-23n-9w, elev 225 ft, 13-3/8 in csg 838 ft, top first anhydrite stringer 4175 ft, top massive anhydrite 4348 ft, top Travis Peak 5701 ft, top lower Marine 7605 ft, 9⅝ in csg 6838 ft, dr 7985 ft. Lunsford & Ferguson's Turner 1, 20-20n-8w, dry abn, td 2309 ft. Fohs Oil Co.'s Thomas 1, se se 10-22n-11w, rur.

WINN PARISH—G. W. Zeigen's La. Cent. Lbr. Co. 13, 4-13n-1e, woc surf csg 63 ft.

EAST TEXAS BORDER COUNTIES

CASS COUNTY—V. A. Hughes & Co.'s Lyster 1, Wm. Bateman sur, top Georgetown lime 4420 ft (corrected), set 5½ in csg 4345 ft, testing sg in Paluxy 4350 ft, td 4463 ft. G. H. Vaughn's Ryley 1, J. Taylor sur, arr abn, td 6290 ft. G. H. Chambless' White & Walker Lbr. Co. 1, J. J. Potter sur (280 ac), dr 4652 ft.

HARRISON COUNTY—Ark. Fuel Oil Co.'s C. M. Abney 1, Eason Little sur, set 7-in short string to shut off gas sand at 2440 ft, set another string at 2600 ft, arr to deepen, td 4820 ft (Glen Rose).

MARION COUNTY — Tom Bell's Carrie Mosely 1, claim so at 2513 ft, sd for csg, td 2524 ft.

PANOLA COUNTY—Preston et al's Rushing 1, Nannan Smith sur, fsg 3276 ft. Texas Co.'s Claude Adams 1, Thos. Cox sur, 13⅜ in csg 579 ft, arr set csg, td 6005 ft (9000 ft test).

SHELBY COUNTY—Joe Burnham et al's George 1, C. C. Tutt sur, dr 3065 ft.

MICHIGAN

ALLEGAN COUNTY—Eureka Dev. Co.'s Widenfeller 1, 29-4n-12w, so 1600 ft, 6-in csg 1588 ft. S. B. Hood's Wright 1, 9-3n-13w, 6 in csg 1610 ft, so. Vague & Nilsen's Vedetta 1, 25-2n-14w, sd 1550 ft.

BAY COUNTY—C. W. Teater's Goodman 1, 28-18n-3e, Dundee 2957 ft, 5-in 2972 ft, sd 3075 ft. Gulf Ref. Co.'s Swantck 1, 35-15n-4e, rig.

CLARE COUNTY—Gulf Ref. Co.'s Doherty 1, 25-17n-4w, dr 300 ft. Big Basin Oil Co.'s Murphey 1, 26-17n-3w, dr 1400 ft.

GLADWIN COUNTY — Fortney Oil Co.'s Trine 1, 16-17n-2e, dr 3096 ft. W. E. Ross, Tr.'s Kinyon 1, 18-18n-2e, sd 3140 ft. McClanahan Oil Co.'s Sharp 1, 9-19n-2w, dr 990 ft. Franklin Pet.'s State 1, 8-19n-2e, dr 2970 ft.

(see opposite page)
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ISABELLA COUNTY — Bell-Marks, Inc.'s Fox 1, 5-13n-5w, r 10-in 610-800 ft. J. G. Zabel's Kennedy 1, 25-14n-4w, dr 3540 ft.

MECOSTA COUNTY—Mitchell Oil Co.'s Blodgett 1, 22-13n-10w, dr 1400 ft. Jetter Drilling Co.'s Deakins 1, 28-13n-7w, dr 1300 ft.

MIDLAND COUNTY—Sun Oil Co.'s State A-1, 5-16n-1w, testing 3860 ft; State A-1, 3-15n-1w, dr 810 ft. J. V. Wicklund's Royalty Co. 3, 24-16n-2w, 6 in csg 1568 ft.

MONTCALM COUNTY—Smith Pet. Co.'s Williams 1, 17-11n-7w, black water 3366 ft, pb 1190 ft to gas s. Rex Oil Co.'s Higgins 1, 13-9n-8w, sd 3142 ft. Socony-Vacuum, Inc.'s Hansen 1, 22-12n-6w, Dundee water 3578 ft, pb to 1320 ft to 4½ million foot Stray gas. H. L. Gentry's Christensen 1, 29-11n-8w, dr 2000 ft.

NEWAYGO COUNTY — Gulf Ref. Co.'s Walker 1, 25-13n-13w, rust.

OTSEGO COUNTY—Barton & William's Yuill 1, 9-32n-3w, dr 1400 ft.

TUSCOLA COUNTY—Norton & Kramer's Sharp 1, 30-14n-8e, dr 100 ft.

WEXFORD COUNTY—G. H. Schrack's Fee 1, 17-22n-9w, sd 3004 ft.

MISSISSIPPI

CALHOUN COUNTY—S. and O. Properties, Inc.'s G. C. Cooner 1, se ne 12-24n-8e, dr 2240 ft (Tuscaloosa), no recent report.

CLAIBORNE COUNTY—Claiborne County Dev. Co.'s Ruth Hayden 1, s½ se 55-11n-2e, elev 199 ft, top Sparta 1802 ft, dr 2110 ft, gummy shale.

GEORGE COUNTY—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, elev 111 ft, 10-in csg 1374 ft, woc, td 1376 ft, top of Het.

HINDS COUNTY—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. S. F. Johnson 1, ne se 29-6n-1w, dr 2408 ft, shale and bldrs (Wilcox). Progressive Realty Co. 1, se sw 35-6n-4w, dk. Black River Oil Co.'s Federal Land Bank 1, ne ne 11-15n-5e, elev 146 ft, top chalk 6961 ft, fsg for 7000 ft 4-in drill pipe, td 7584 ft.

JONES COUNTY—Snow-Black Pet. Co.'s Crawford 1, s½ nw 29-7n-12w, ran formation tester, no show, td 4280 ft.

LAMAR COUNTY — Southern Miss. Pet. Corp.'s Morris 1, nw se 4-2n-14w, set 10-in csg 1131 ft, woc.

PERRY COUNTY—Phillips Pet. Co.'s J. J. Newman Lbr. Co. 1, se se sw 21-2n-10w, elev 210 ft, sd 780 ft sandy shale, repr rig.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, se sw 33-2n-4e, dr 1998 ft.

YALABOUSHA COUNTY—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25s-7e, elev 415 ft (corrected), sd 810 ft Midway.

OKLAHOMA

ADAIR COUNTY—Maddox' Penn Mutual Life Ins. Co. 1, cs½ ne nw 5-16n-24e, sd 520 ft.

ATOKA COUNTY — Sheldon & Gardner Pet.'s Lee 1, ne nw sw 2-4s-10e, sd 2416 ft. Stanolind & Amerada's Ridgway 1, nw ne ne 24-3s-9e, dr 2485 ft.

BECKHAM COUNTY—Mid-American's Biscoe 1-A, sw sw sw 28-8n-22w, dr 2687 ft.

BRYAN COUNTY—Southern Oil's Henry 1, cnw ne 10-8s-7e, dr 4608 ft.

CARTER COUNTY—Lloyd & Noble's Revelle 1, sw sw se 21-3s-2w, td 4028 ft, sdo.

CLEVELAND COUNTY—Harper & Turner's Pollock 1, cw½ nw nw 13-9n-2w, td 7590 ft, testing. Hollenback's Mantooth 1, nw nw nw 24-6n-1e, rig. Delaney's Bugher 1, se se sw 12-7n-2w, wo tools.

CHOCTAW COUNTY—Chapman & Lowe's Hallum 1, nw nw ne 4-7s-20e, dr 700 ft. Ross' Hardy 1, se se nw 21-7s-15e, lcn.

COMANCHE COUNTY—Wolf's Costinus 1, sw sw se 30-4n-11w, spd. Scott's Kuntz 1-A, se ne se 27-4n-11w, sd 2800 ft. Roach's Green 1-A, se se sw 2-1n-13w, sd 550 ft.

COTTON COUNTY—W & P Oil's Worsham 1, nw nw se 15-4s-10w, lcn. Turner's Collins 1-A, sw ne ne 18-4s-10w, dr 1260 ft.

CREEK COUNTY—Mosier's Holcomb 1, se sw ne 19-18n-1e, td 3018 ft, 2000 ft wih & sso, sd.

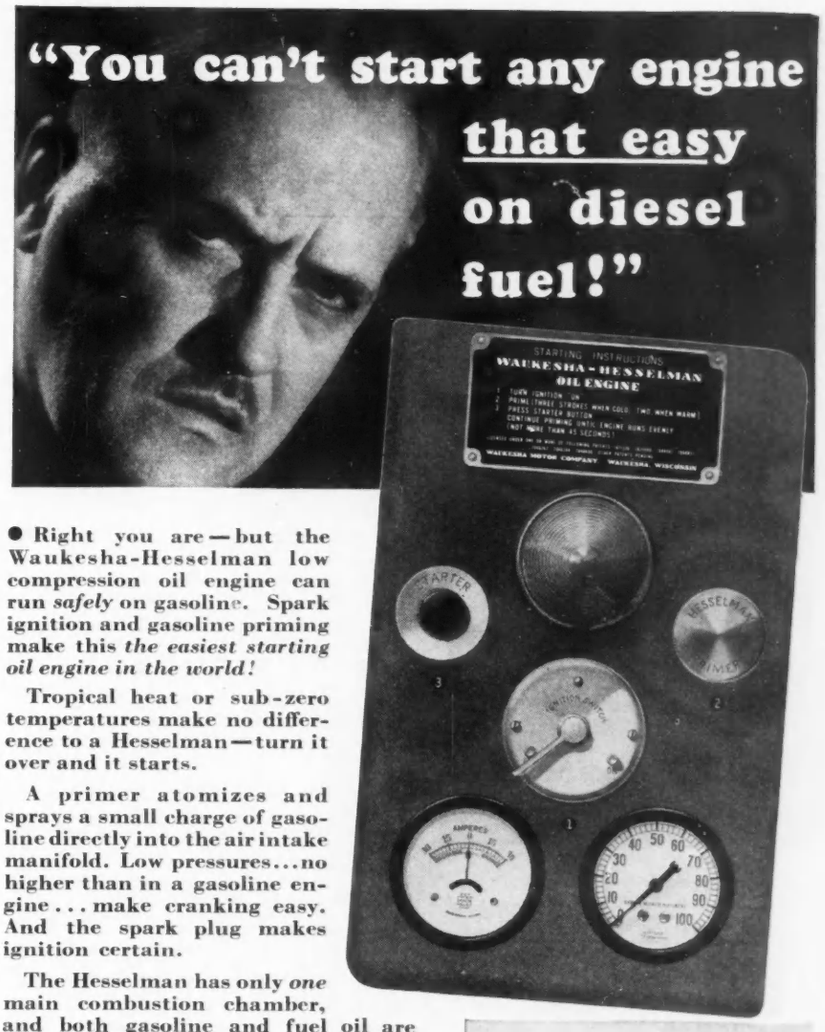
GARFIELD COUNTY—Hollenback's Clark 1-A, nw nw nw 34-21n-6w, td 7336 ft, to perf.

GARVIN COUNTY—Edwards' Clark 1, ne ne ne 16-3n-3e, pb to 2090 ft, rust.

GRADY COUNTY—Gulf's Thomas 1, sw nw nw 14-4n-5w, dr 10,972 ft. Doyle's Huffine 1, nw nw se 30-5n-8w, der. Nicholson's Cleveland 1, nw ne ne 18-5n-8w, lcn abd.

GREER COUNTY—Medlin's Broudie 1, nw nw nw 5-6n-20w, sd 90 ft. McDonald's Fite 1, se se nw 34-7n-21w, dr 1007 ft, hfw. Gauntt & Baker's Parks 1, nw nw sw 29-7n-20w, sd 720 ft. Everitt's Graumann 1, ne nw nw 11-5n-21w, dr 40 ft.

HUGHES COUNTY—Phillips Pet.'s Becker 1, ne nw sw 8-5n-10e, pb to 5760 ft, woc. Doup's Bank 1, ne ne nw 7-7n-9e, sd 335 ft. Rives' Hawthorne 1, sw sw se 19-7n-10e, lcn. Phillaine's Morrison 1, se se sw 13-9n-10e, td



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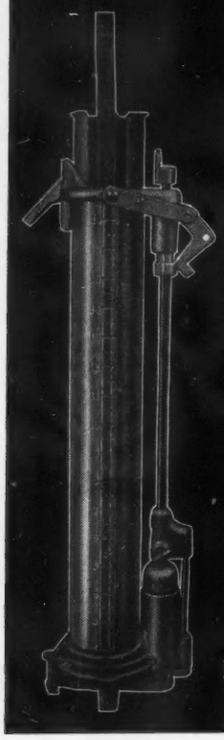

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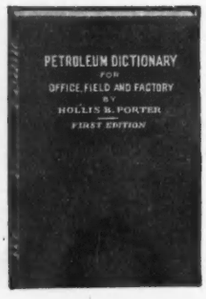

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JEFFERSON COUNTY—Massad & Swainsberger's Barrett 1, ne se se 14-6s-6w, sd 1890 ft. Weir's Hayes 1, se se nw 23-7s-7w, der.

JOHNSTON COUNTY—Patton's McCrummens 1, sw sw ne 16-1s-6e, sd 1380 ft. Shelton's Chapman 1, cnw nw 26-4s-6e, td 3176 ft, cem off cave.

KAY COUNTY—Shaffer's McKee 1, ne ne nw 20-28n-1w, sd 2500 ft. Shaffer's Rudolph 1, ne ne sw 27-29n-1w, cel. Nye's Willin 1, se se sw 24-27n-4e, C&P. Pierce's Hannan 1, se se se 26-28n-2e, dr 1450 ft.

KIOWA COUNTY—Hughes & Reese' Fultz 1, se se se 10-6n-18w, sd 1238 ft.

LINCOLN COUNTY—Wilcox' Royer 1, se se ne 18-14n-6e, dr 1800 ft. Stanolind & Amerada's Strader 1, nw nw ne 8-13n-3e, dr 4450 ft.

LOGAN COUNTY—The Texas Co.'s Roper 1, cw½ sw se 22-15n-1e, td 5542 ft, sdo. Arrow Drlg's Dobson 1, nw nw nw 23-17n-1w, dr 5296 ft. Carter's Lydick 1, ce¼ nw ne 23-15n-4w, spd.

LOVE COUNTY—Sinclair Prairie's Peabody 1, ne ne ne 35-6s-2w, dr 2215 ft.

MURRAY COUNTY—Owens' Gryer 1, ne se ne 34-1s-3e, dr 2685 ft.

MUSKOGEE COUNTY—Cusack's Elliott 1, cnl nw sw 20-15n-20e, rog. Cusack's Fee 1, ne sw se 20-15n-20e, spd 65 ft. Heydrick's Bolby 1, cne 22-13n-19e, dr 630 ft.

OKFUSKEE COUNTY — Broswood Oil's Lehman 1, nw sw nw 21-13n-10e, td 2854 ft, flow 38 bbls oil, 24 hrs, comp.

OKLAHOMA COUNTY—Allen's Jackson 1, ce½ se nw 6-14n-3w, td 6746 ft, abd.

OKMULGEE COUNTY—Detrick's McCann 1, nw se sw 33-14n-11e, td 2590 ft, flow 13,000,000 cf gas, comp. Bryan Pet.'s Thompson 1, cse ne ne 8-15n-11e, rig.

OSAGE COUNTY—Norbla-Carter's Mullendore Trust Co. 1, nw nw nw 3-24n-6e, spd. Norbla's Osage 1, se se se 18-25n-7e, lcn.

PAWNEE COUNTY—Ross & Patterson's Morhain Heirs 1, ne ne nw 30-22n-7e, rig.

PAYNE COUNTY—Big Chief Drlg.'s Moore 1, se sw nw 17-18n-1e, set 12½-in csg 200 ft, woc. Helmerich & Payne's Ritchey 1, cne nw 34-18n-1e, dr 5260 ft.

PONTOTOC COUNTY—Union Dev. Co.'s Abbott 1, sw nw ne 34-3n-6e, fsg 3320 ft. Lee's Weatherly 1, nw se nw 24-1n-7e, dr 280 ft. Cowley's McCormich 1, sw sw se 29-2n-4e, dr 272 ft. Delaney's Perrine 1, se nw nw 27-5n-5e, lcn. Calama Oil's Brentz 1, se ne sw 4-1n-6e, rur. Conley Drlg.'s Fleming 1-A, sw se se 12-5n-4e, bail to 1500 ft, sd by legal difficulties.

POTTAWATOMIE COUNTY—Hall & O'Mara's Show 1, ne ne se 32-6n-5e, dr 3012 ft. Davis' Jones 1, nw ne sw 34-6n-5e, td 2314 ft, rust.

ROGER MILLS COUNTY—Central Pet.'s Lambe 1, se se se 27-14s-21w, rig corners and sd.

SEMINOLE COUNTY—Woodson & Marydun Oil's Gilliland 1, se se sw 24-11n-7e, fsg 4295 ft. Pine's Wright 1-A, se se ne 16-6n-6e, dr 1640 ft. Myers & Holko's Berrio 1, se se nw 15-10n-6e, td 2116 ft, abd.

STEPHENS COUNTY—Coline Oil's Johnson 1, sw se ne 1-2n-8w, ru to dr out bridge at 9058 ft. Helmerich & Payne's Pfile 1, sw sw sw 1-2s-7w, td 4246 ft, abd. Helmerich & Payne's Moursberger 1, cs½ sw se 29-2n-8w, dr 3115 ft.

TEXAS COUNTY—Hagey's Peck 1, cne¼ 6-1n-13ecm, td 2842 ft, co. Hardendorf & Kuhn's Wiggins 1, cnw¼ 1-2n-14ecm, dr 2490 ft. Hardendorf & Kuhn's Wiggin 2, cne¼ 2-2n-14ecm, lcn.

TILLMAN COUNTY—Cockburn's Nicholas 1, se se se 28-2n-19w, td 4015 ft, abd. Gibson-Jennings' Burleson 1, se se sw 35-2s-19w, rur. Schoonover's Loftis 1, nw nw se 19-2s-18w, lcn. Martin's Parris 1, nw nw sw 3-3s-19w, dr 2200 ft. Grimes' Laney 1, nw nw nw 3-3s-18w, dr 3897 ft. Grimes' Hall 1, sw ne sw 12-3s-19w, lcn.

TULSA COUNTY—North's Leibig 1, ne n wsw sw 34-8n-19w, sd 2037 ft.

WASHITA COUNTY—McWhirter's Fee 1, nw sw sw 34-18n-19w sd 2037 ft.

WEST TEXAS

(This report confined to south and east portions of the Permian basin and all Ordovician and Delaware prospects).

BREWSTER COUNTY—Floyd C. Dodson-B. A. Duffey et al's Texas American Synd. 1-a, near c ne ne GH&SA sec 66, blk 10, elev 4228 ft, top Delaware shale 2297 ft, top Simpson 6733 ft, co 7410 ft. G. H. Storey et al's J. P. Wilson 1, c se nw T.&St. L. sec 3, blk 212, elev 3609 ft, sd 2545 ft. H. D. Wilcox et al's W. H. Kokernot 1, nw sw sec 12, blk C, J. V. Massey sur, dr 675 ft.

CONCHO COUNTY—Barnett Oil Developments, Inc.'s D. E. Sims 1, Carl Thiele sur No. 58, Ordovician test, elev 1674 ft, td 162 ft, rust.

COKE COUNTY—Barnett Pet. Corp.'s J. E. Mims 1, SEc T&P sec 39, blk W, elev 2352 ft, trace oil 1640 ft, dr 1690 ft. H. E. Ogden et al's E. C. Rawlings 1, SWc H&TC sec 391, blk 1-A, dr 2710 ft.

CRANE COUNTY—Gulf Oil Corp.'s W. N. Waddell et al 7, c sw se PSL sec 4, blk B-27, Ordovician test, elev 2537 ft, base Permian and top Simpson 5828 ft, cem 7-in 5881 ft, td 5953 ft. Humble, Sun, Gulf et al's J. B. Tubb 1, NWc PSL sec 19, blk 32, mim. Loffland Bros. Co.'s Reidland 1, SEc PSL sec 2, blk B-27, Ordovician test, elev 2570 ft, fsh 5434 ft. Magnolia's University 1-16, NWc sec 16, blk 30, dr 695 ft.

CROCKETT COUNTY—Rockmaker et al's A. C. Hoover 1, NEc sw B&B sec 1, blk FF, lcn. L. H. Choate-F. T. Hogan's University-Gulf 1, se ne sw sec 17, blk 14, mim. Short & Gillette's A. C. Hoover 1, se se nw GC&SF sec 3, blk 1, mim. Sindorf & Stone's A. C. Hoover 1, NWc GC&SF sec 4 (south), sd 850 ft. Stewart & Cormas' A. C. Hoover 1, nw sw B&B sec 1, blk FF, elev 2380 ft, top salt 475 ft, top lime 1747 ft, shot 50 qts 1885-1931 ft, split cas.

CULBERSON COUNTY—Ross Brewer, Collins et al's C. M. Caldwell 1, sw¼ PSL sec 14, blk 42, elev 3819 ft, top Delaware lime 1885 ft, dry and abd 2352 ft. Grisham-Hunter Corp.'s C. M. Caldwell 1, near se nw PSL sec 14, blk 42, dr 205 ft. Harry Nieuhaus et al's C. M. Caldwell 1, se nw PSL sec 15, blk 109, cem sur cas.

ECTOR COUNTY—Sinclair-Prairie-York & Harper, Inc.'s Paul Moss 1-A, nw nw se T&P sec 40, blk 44, T-2-S, dr 1100 ft. Lou Stogner et al's E. F. Cowden-Humble 1, nw T&P sec 4, blk 43, T-2-S, lcn.

EL PASO COUNTY — Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, ne cor sec 237, S. F. No. 7232, elev 3977 ft, trace oil 3425-27 and 3449 ft, td 3571 ft, sd to acidize.

FISHER COUNTY—Bond Oil Corp.'s Bertram 1, SEc sw labor 43, league 323, Bastrop C.S.L. sur, elev 1852 ft, base Sedwick 2764 ft, top Dothan 2800 ft, top Noodle Creek lime 2900 ft, ur 3312 ft. Owens-Snebold Oil Corp.-A. C. Verner's J. H. Milsap 1, SWc 2¼ ne H&TC sec 61, blk 1, cem cas 145 ft.

TOM GREEN COUNTY—Humble's Lewis-Wardlaw 1, near c ne se H&TC sec 5, blk 17, Ordovician test, elev 2142 ft, San Angelo lime 340-630 ft, dr 6950 ft. Southern Cross Oil Co.'s J. W. Wilson-Upton 1, c nw AB&M sec 30, blk A, lcn. M. R. Stuard et al's Frank Garlitz 1, J. H. Mueller sur No. 2201, Certf. No. 760, machine.

GLASSCOCK COUNTY—O. B. Greathouse et al's Burns 1, se se nw W&NW sec 184, blk 29, machine.

HOWARD COUNTY—H. L. Lockhart et al's Scott 1, SEc W&NW sec 67, blk 29, elev 2415 ft, pb fr 2925 to 2875 ft, shot 940 qts 2700-2850 ft, co 2000 ft oih. Roy A. Westbrook et al's Great West Ref. Co. 1, near NEc T&P sec 49, blk 32, T-1-N, elev 2469 ft, gauged 368,000,000 ft nitrogen and oxygen at 1460 ft, hfw, ur 3692 ft.

HUDSPETH COUNTY—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, NWc T&P sec 24, blk 73, Tsp. 7, sd for cas 3505 ft; S. J. Thaxton 1, near SEc ne se T&P sec 34, blk 74, Tsp. 6, ur 4162 ft.

LOVING COUNTY—Argo Oil Corp.'s T. P. Land Trust 1, se se sw T&P sec 17, blk 55, Tsp. 1, mim. Michigan O&G Co.'s M. Kyle 5, nw nw ne T&P sec 20, elev 3098 ft, top Delaware lime 3880 ft, top sand 3912 ft, shot 100 qts 3912-65 ft, flowed 325 bbls initial 23/64-in choke. Shell's T. P. Land Trust 1, sw sw se T&P sec 17, blk 55, Tsp. 1, lcn.

MENARD COUNTY—G. A. Clements et al's A. H. Murchison 1, SWc sec 80, Boeddecker sur, elev 2073 ft, dr 1205 ft. C. D. Hagerty et al's Callan 1, SWc e of J. M. Franz sur, sec 36, elev 2026 ft, sd 199 ft.

NOLAN COUNTY—C. Ed. Hyde et al's E. H. Withers 1, c sw T&P sec 65, blk 21, sp and sd.

PECOS COUNTY—Aero Gas & Ref. Co.'s Iowa Realty Trust 1, e cor H&TC sec 13, blk 10, sd 1185 ft; Johnson-Skelly 1-a, n½ H&GN sec 40, blk 8, elev 2446 ft, top lime 2150 ft, hole full sul w 2710 ft, dry and abd. Butler & Daniel's Lowery 1, NEc n½ H&GN sec 80, blk 8, dr 1710 ft. Cardinal Oil Co.'s White-Baker 1-36, se se sw T. C. Ry. sec 36, blk Z, dr 405 ft. Ed. Falvey et al's Joe C. Trees 1, sw nw nw H&GN sec 63, blk 8, fsh 2055 ft. Magnolia and Tex-Mex Pet. Corp.'s J. H. McKee 1-a, near nw nw sw H&GN sec 24, blk 9, elev 2385 ft, (jkd twice), top Simpson 4775 ft, tested small volume 43° oil and gas at 5294 ft, ur, no production, 5380 ft. H. H. Sides et al's Blackstone-Slaughter 1, SEc T.&St. L. sec 25, blk 130, fsh 270 ft. Thompson & E. R. Minshell's Michaelson 1, c nw ne T. & St. L. sec 24, blk 146, elev 3023 ft, sul w 3003-04 ft, dry and abd. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se¼ GC&SF sec 53, blk D, Ordovician test, elev 3938 ft, minor o&g showings before run 5½-in pipe at 7028 ft to

test at 7128 ft, show gas 7210 ft, fsh 7212 ft. Trans-Pecos Oil Co.'s F. M. Gallagher 1, ne ne nw T&P sec 9, blk 51, Tsp. 10, sd 1620 ft; Popham Land & Cattle Co. 1-B, s½ GH&SA sec 235, blk 11 (3rd hole), sd 1934 ft. H. F. Wilcox O&G Co.'s Cerf 1, near c se sw T.&St. L. sec 27, blk 130, elev 3534 ft, dr 2360 ft.

PRESIDIO COUNTY — Brite Production Co.'s L. C. Brite 1, ne¼ GH&SA sec 113, blk 12, tested 2½ bbls oil daily at 4267-75 ft, lost hole, sd 4375 ft.

REEVES COUNTY—Barnett Pet. Corp.-J. C. Hill & Conoco's Ely-Healy 1, c nw PSL sec 38, blk 71, Delaware test, elev 3166 ft, top Delaware lime 3814 ft, top sand 3877 ft, sd in salt w 3890 ft and 4218-23 ft. Grisham-Hunter Corp.'s Geo. Daniel 1, c ne T&P sec 40, blk 58, Tsp. 6, dr 490 ft. C. R. Mallison & Richardson Oils, Inc.'s E. M. Brown-State 1, near c sw H&GN sec 62, blk 4, elev 2686 ft, base salt 4060 ft, top Delaware lime 4220 ft, top sand 4262 ft, sd 4638 ft. Ohio Oil Co.'s Popham Land & Cattle Co. 1, nw T&P sec 18, blk 54, Tsp. 10, elev 3623 ft, dr 1280 ft.

RUNNELS COUNTY—F. G. Beaudoin & Rex Cannon's H. Giesecke 1, Jas. Hughes sur, A-227, mim; J. W. Barr 1, C. Montez sur No. 230, lcn. J. W. McLean et al's E. H. Pflueger 1, Asa Clark sur, A-506, mim. Homer Price & A. E. Koener's J. C. Beddo 1, sub-div No. 51, D. Diaz sur, elev 1700 ft, sd 3483 ft.

SCHLEICHER COUNTY—John M. Cooper et al's Bert Page 2, c ne sw GH&SA sec 40, blk L, elev 2289 ft, Ordovician test, sd 5004 ft. H. B. Opp et al's J. T. Jackson 1, nw ne TC sec 41, blk LL, sp and sd. Tex-Tor Oil Corp.'s Judkins-Spencer 1, c sw A&B sec 33, blk A, elev 2235 ft, top Ellenberger 5547 ft, dr 6295 ft.

SCURRY COUNTY—Robinson Drl. Co.'s A. C. Martin 1, c nw sw H&TC sec 147, blk 97, elev 2234 ft, top lime 1514 ft, pb fr 3515 to 2590 ft, shot 300 qts 2420-92 ft, pb to 2500 ft, used 1000 gals acid, lost cas seat, sdo. T. G. Shaw Oil Corp.'s First Nat'l Bank (Ft. Worth) 1, c nw H&TC sec 112, blk 97, elev 2214 ft, top lime 1568 ft, lost tools, sd 3369 ft.

STERLING COUNTY—Jno. W. Sward et al's T. G. Brennand 1, se se ne H&TC sec 107, blk 2, dr 480 ft.

STONEWALL COUNTY—Gen'l Crude Oil Co.'s J. D. Smith 1, SEc H&TC sec 371, blk 2, 13 mi n Rotan, dr 2835 ft. Bert Fields et al's Pierson 1, J. M. Lee sur, lcn. A. G. Swanson & Parriott's H. T. Carlisle 1, sw se sw H&TC sec 293, blk D, dr 2790 ft.

SUTTON COUNTY—A. A. Basse & S. J. Sackett's W. A. Miers 1, c nw TW&NG sec 54, blk 14, sp and sd. Ordovician Oil Co.'s J. T. Evans 1, NEc sec 1, blk V-26, Lucy Stubblefield sur, elev 2126 ft, top Canyon 2320 ft, top Strawn 2860 ft, top Bend lime 3315 ft, top Ellenberger 4085 ft, dry and abd 4188 ft.

TERRELL COUNTY—R. A. Basurto et al's J. H. Phelps-Bates 1, near SEc nw sec 5, G. W. Turley sur, A-4, Ordovician test, elev 2185 ft, sd 5600 ft. D. & S. Oil Co.'s Sam Bell 1, near SWc nw sw EL&RR sec 68, blk D-7, dr 715 ft.

UPTON COUNTY—W. D. Riser et al's King 1, NWc n½ MK&T sec 8, blk 3, fsh 730 ft. W. M. Holland et al's Henry Halff 1, se nw sw sec 6, blk A, CCSD&RGNG sur, elev 2699 ft, dr 800 ft.

WARD COUNTY—J. E. Fitz-Patrick, Frank T. Pickrell et al's H. B. Carr 1, c w¼ n¼ H&TC sec 125, blk 34, Delaware test, top Rustler 705 ft, dr 800 ft; F. I. Dyer 1, w¼ n¼ H&TC sec 135, blk 34, Delaware test, top Rustler 695 ft, dr 1010 ft. L. B. Hoss & F. J. Downey's R. Avery-Atlantic 1, s¼ H&TC sec 36, blk 1, elev 2407 ft, top anhydrite 745 ft, top salt 820 ft, dr 1710 ft; Viola Meyers 1, sw 80-ac of H&TC sec 17, blk 32, lcn abd. Magnolia's Geo. Sealy 2-46, ne sw ne G&MM B&A sec 46, blk F, elev 2713 ft, top lime 2658 ft, td 2723 ft, rust. R. G. Patillo et al's Blair-Republic 1, n cor H&TC sec 5, blk 32, top anhydrite 455 ft, top salt 781 ft, 300 ft oih, dr 2160 ft. States Oil Corp. et al's H. A. Spencer 1-a, near e cor H&TC sec 41, blk 34, elev 2610 ft, top anhydrite 1492 ft, cem 7-in 2390 ft, td 2555 ft.

SOUTH TEXAS

BEE COUNTY—Dougherty's Beck 1, Uranga gr, swabbing, depth 3721 ft.

DEWITT COUNTY—Hines' Boothe 1, Swindle sur, dr 2000 ft.

GOLIAD COUNTY—DeArman & Winward's Drier 1, sur, 7, coring 3890 ft.

HIDALGO COUNTY—Gulf States' Cardenas 1, sh 156, dr plugs, testing, depth 1720 ft. Johnson's Daskam 1, blk 33, td 216 ft, wocs. Sun's Bostedt (Krebs) 1, blk 16, wocs around 347 ft.

JACKSON COUNTY — Adams' Foust 1, White sur, dr 3941 ft. Harrison's Wearden 1, Williams sur, wocs, set sur csg. Humble's Davis 1, blk 150, dk. Magnolia's West 1, Morgan sur, dr 7785 ft.

JIM WELLS COUNTY—Howell's Goldapp 1, perf above 3550 ft, testing. Magnolia's Seeligson 8, Los Jaboncillos gr, dr below 6155 ft. Pressnal & Mosser's Mortgage 1, sd, wo wtr well, td 100 ft. Smith & Story's Adams 1, sec 22, skid on.

KARNES COUNTY—Pure's State of Texas 1, tr 522, still dredging canal.

LIVE OAK COUNTY—Chew & Hantho-Nelson's Bell 1, Parks sur, perforating in sand 5155-95 ft, 3½ in. liner set on btm, 5290 ft. Culton's Wedding 2, Haughy sur, sd around 2550 ft, woo. Hickok & Reynold's Land Bank 1, Tipps subd, cor 1400 ft. Martin's Adams 1, sec 25, co hole, dr below 965 ft. Newton's West 1, Pieratt sur 129, dr 1550 ft. Unit's Terrell 1, O'Boyle sur, mim. Wilson's Great American Life 1, sec 47, Ezzell Ranch subd., dk.

NUECES COUNTY—Corpus Christi, Howington 1, Oliver sur 156, dr 3654 ft. Morgan's Fee 1, Roberts subd, dr 3503 ft. Phillips' Clark 1, sur 419, dr 5638 ft. Renwar's Kenedy A-1, sur 420, sp. Richardson's Baldwin 2, blk 5, dr 4712 ft; Cowles 1, sec 43, dr 7320 ft. Rutherford's McKinzie 1, sur 422, ru. Seaboard's Luby 7, sec 1, sh 2, lcn. Texon's Horne 1, Palo Alto gr, dr 6210 ft. Union's Brown 1, sec 87, dr 3901 ft; Galladay 1, Agua Dulce gr, testing, perf 6730-40 ft; Perkins 1, sec 32, wocs, td 4902 ft; Rivers 4-A, Garcia gr, cor 6892 ft; Torbett 1, sur 83, cor 6379 ft. Wellington & Seaboard's Dugger 1, cor 5490 ft.

REFUGIO COUNTY — Barnsdall & Transwestern's Fagan 1, cor for 4800 ft sand. Continental's Scott 1, dr 7435 ft.

SAN PATRICIO COUNTY—Burton's Owen 1, sec 62, lcn. Moore's Kelly 1, lot 24, cor 6745 ft. Smith's French-Shares, sec 65, dr 1250 ft.

VICTORIA COUNTY — Portilla's Welder D-1, SA&MG sur, dr 925 ft. Stanolind's Vandenberge 1, Benavides sur, dr 6090 ft. Superior & Gillespie's Carroll 1, Johnson sur, mim.

WILLACY COUNTY — Magnolia's Armendiaz 1, sh 4, reaming at 4681 ft, td 9641 ft. Sal Vieja's Garcia 2, sh 59, dr 6666 ft.

DUVAL COUNTY—Atlantic's Gravis 1, sur 88, dr 3325 ft. Conroe's Trevino 1, Poitevent sur, ru. Cowan & Sorey's Taylore 1, sur 214, cor 1628 ft, tested dry in sand 1614-24 ft. Magnolia's Hoffman 1, sur 111, wocs 896 ft. Petroleum Producers' Worden & Drought A-1, sur 159, cor 1125 ft.

McMULLEN COUNTY—Bennett's Nueces Land & Livestock 1-C, sec 21, dr below 21 ft. Day's Wulff 1, sec 77, dr 1825 ft.

STARR COUNTY—Clopton & Reed's Roos & Bennett 5, blk 9, dr 1625 ft. Collins' Guerra 1, sh 20, sd 6205 ft. Scarborough's Haden 1, sh 47, por 80, dr 65 ft.

ZAPATA COUNTY—Falcon's Yzaguirre 1, por 14, sd 1660 ft. Tomkins' Gutierrez 1, India gr, dr 1090 ft.

SAN ANTONIO DISTRICT

ATASCOSA COUNTY—Allison's Mischwitz 1, Garza sur, dr 175 ft. S.W.R.'s Miller 1, dr 390 ft.

BASTROP COUNTY — Franklin's Thaxton & Yarrington 2, Bangs sur, sp.

BEXAR COUNTY—Ball & Du Bose's Miller 1, sur 55, woo, td 825 ft. Harrison, Fain & Smith's Schuwirth 1, gr No. 2, dr 975 ft. Hickok & Reynolds' Ewert 1, sur 201½, sh 2500 ft, clearing titles, 7-in lowered 2443 ft. Noake's Oppenheimer 1, Miller sur, sh 18 ft. Philtop's Cassin 1, Rodriguez sur, dr 1150 ft. Rosenberg's Carle 1, Rolen sur, setting csg, td in 30 ft sandy sh with oil show, td around 910 ft.

BURLESON COUNTY—Red Banks Coffield 1, Santef sur, sp.

CALDWELL COUNTY — Owens & Van Wagnen's Smith 1, Roe sur, sd, woo, 2323 ft.

EDWARDS COUNTY—Auld's Henderson 1, sec 46, dr below 3674 ft.

FRIO COUNTY—Pagenkopf & Jamieson's Houston 1, Figuerra sur 151, testing on pump, td 2651 ft.

GUADALUPE COUNTY—Kallison's Ranft 1, Burnham sur, dr 2000 ft. Spiller's Wright 1, Cottle sur, dr 2000 ft.

MAVERICK COUNTY—Wellington's Chittim 1, dr 4812 ft; Chittim A-1, still testing, td 2697 ft.

MEDINA COUNTY—Ewing's Riff 1, sur 42, ru. Trentman & Merrit's Carle 1, sur 72½, dr 1450 ft.

MILAM COUNTY — Tuxedo's Graham 1, Cronea sur, dr 1250 ft; Graves 1, Robertson sur, sh 1150 ft.

TEXAS GULF COAST

BRAZORIA COUNTY—Sam Dunnam's Settegast 1, Pearland area, T. J. Green sur, ru. Albert Plummer's Street 1, Pearland area, D. Hunter sur, dr shale 5019 ft. Pure's State Prison Farms 1, Peach Point area, S. F. Austin sur, dr shale 5987 ft. Luther C. Smith's Smith Fee 1, Flag Pond prospect, P. A. Rogers sur, lcn.

CHAMBERS COUNTY—A. A. Cameron's White 1, Canada Ranch prospect, S. Brill sur, dk. Laverne Decker's Broussard Trust 1, Double Gum Bayou area, H&TC Section 30, dr shale 3250 ft.

GALVESTON COUNTY — Sun Oil Co.'s Cade & Co. 1, Boliver prospect, A. Dickson sur, driving piling.

JEFFERSON COUNTY—I. E. Harwell's State 1, Gulf of Mexico, Block 72, sd 5000 ft. Humble's McFaddin-State 1, Gulf of Mexico, tract 8, driving piling; same operator's Willis 1, north of Nome, J. Vannes sur, abn 6500 ft.

MATAGORDA COUNTY—Superior Drilling Co.'s P. Kruger 1, north of Van Vleck, C. Warren sur, coring shale 6845 ft.

WHARTON COUNTY—Cockburn & Hargrove's Hudgins 1, Hungford area, M. Muldoon sur, dr shale 1205 ft.

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NEW PRODUCTS FOR THE FIELD
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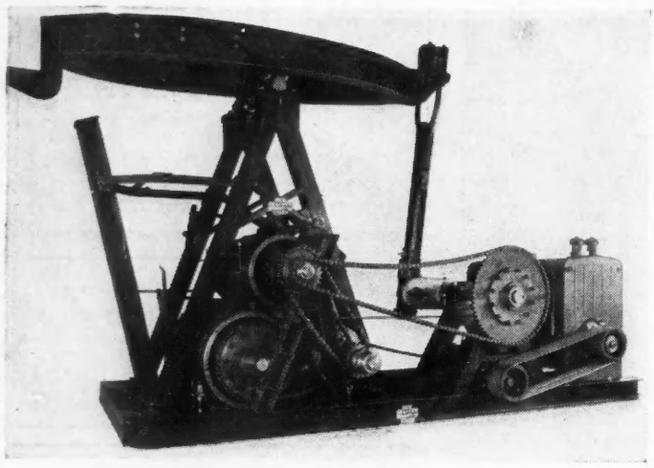
CABLE TOOL UNIT
The Shaffer Specialty Company

The Shaffer Specialty Company, Tulsa, announces a portable servicing and drilling unit which incorporates a new design in walking beams which overcomes the difficulty encountered where the beam obstructs the lines passing back and forth across the face of the drums.



Shaffer Portable Servicing and Drilling Unit

The Shaffer Double Walking Beam includes two wide flange "I" beams joined at the crank and temper screw ends with an oval opening between the ends of free passage of the lines to prevent spooling without disturbing the normal position of the beam.

By spacing the members it divides the load on two sampson posts, thus preventing twisting or misalignment of the beam. The double walking beam, being mounted on double sampson posts independent of the drum jack posts, eliminates the shock load of the beam and prevents misalignment of drum-shafts or bearings.

This portable unit is comparable in operation to conventional cable tool units, furnishing a safe and efficient beam operation for drilling. The shock load of spudding over the derrick as well as excessive wear on drilling lines is eliminated. The beam operation also allows pumping potentials not obtainable with spudding motion.

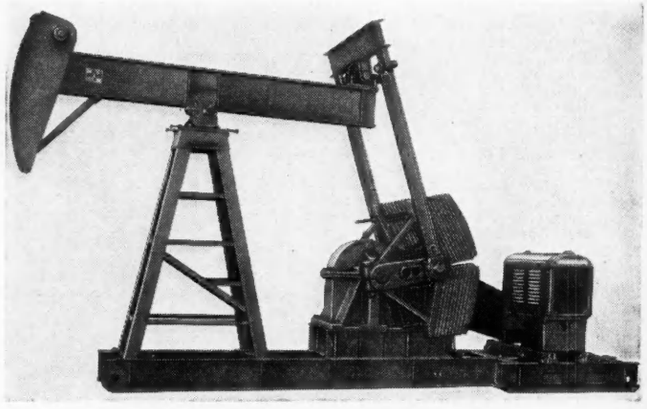
The unit is a universal machine capable of performing in an effective manner all of the operations which may be performed with the conventional standard cable tool drilling rig. It can be used for rotary drilling by converting the crank shaft drive to the rotary table.

UNITS
Muskogee Iron Works

Muskogee Iron Works, Muskogee, Oklahoma, announces its entrance into the pumping equipment field with Double Reduction Twin Crank Pumping Units manufactured in 6 sizes of structurals and 8 sizes of gear boxes. The structurals have polish-rod load capacities from 10,000 to 27,500 pounds. The double reduction herringbone gear units have capacities from 10 to 50 horsepower.

One of the distinctive advantages claimed for the Muskogee units is the interchangeable feature. Several sizes of gear boxes can be used with each size of structural. This feature allows the selection of a combination which will be ideal for the present prevailing well conditions. If the well conditions change, it is possible to replace the gear box and engine with a more suitable size. This interchangeable feature allows the maximum protection with minimum cost.

In addition to the interchangeable feature of the units, the entire units are designed with liberal factors of safety. All plain bearings are designed with allowable bearing pressures as specified by the API. The self-aligning SKF wrist pin bearings are selected for a life of approximately 10 years. All parts are built with welding and drilling jigs. The complete unit is assembled and run in before it is shipped from the factory.

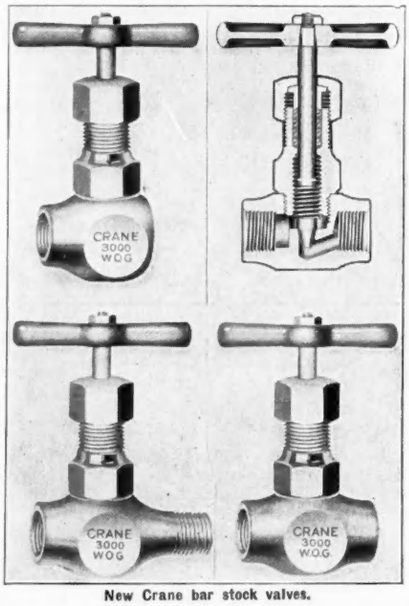


Muskogee Iron Works Pumping Unit

The Pumping Equipment Bulletin P-1, recently released, gives specifications and capacities of the various combinations in detail. Specific recommendations, installation prints, and additional information will be gladly furnished by the manufacturer.

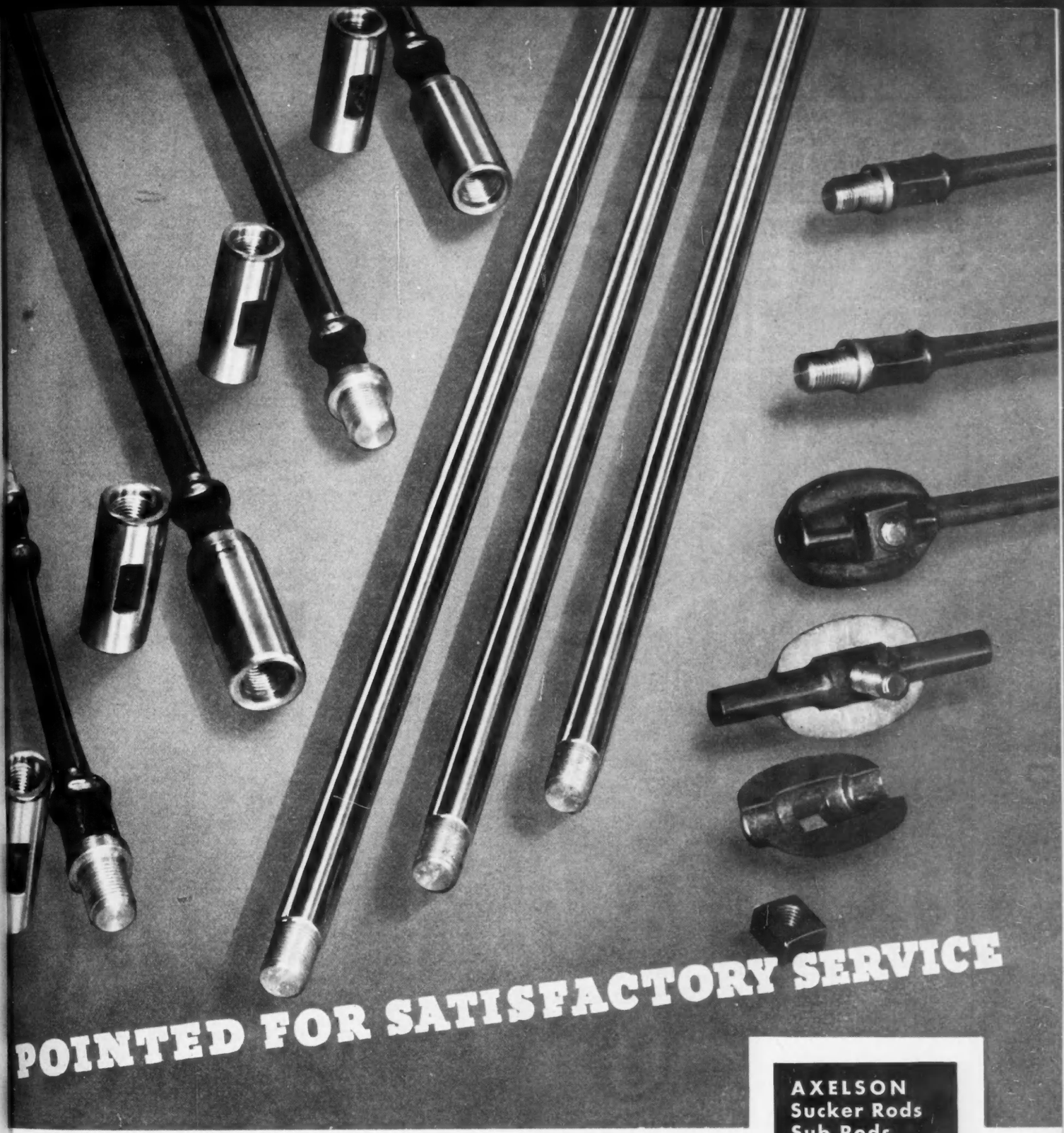
BAR STOCK VALVES
Crane Company

Crane Company, 836 South Michigan Avenue, Chicago, recently introduced three new bar stock valves to the industry. These small 3000 pounds W.O.G. plug-type disc, globe and angle valves are called bar stock valves because their bodies and bonnets are made from solid bar stock. They are considered ideal for connections on orifice meters, regulator leads, by-passes, gauges, for use as expansion valves on ammonia lines and for many similar services where accurate regulation of flow is desired or where parts or measuring instruments must be protected against sudden release of high pressures.



New Crane bar stock valves.

The 18-8 alloy valves are especially suited for oil and gasoline containing hydrogen sulphide or sulphur dioxide when moisture is apt to be present. All of these valves may



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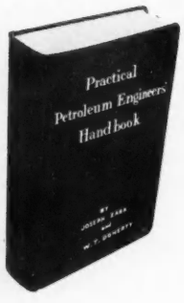

By JOSEPH ZABA, E. M. M. Sc.
Petroleum Engineer, Rio Bravo Oil Company
and
W. T. DOHERTY
Division Superintendent,
Humble Oil & Refining Company

For a number of years there has been a growing demand for a handbook containing formulae and other practical information for the benefit of the man working in the production and drilling branches of the oil industry. So great has been this need that many engineers have tried to accumulate their own handbooks by clipping tables, formulae and figures from scores of sources.

The co-authors of this volume discovered by coincidence that each had been for a period of several years accumulating practical data which through their collaboration appears in this book. Both of them are men who have not only received theoretical training but who have had many years of practical experience as engineers in dealing with every day oil field drilling and production problems.

As a result of this collaboration of effort the publishers of this volume feel that it is a most valuable contribution to oil trade literature.

Its purposes are distinctly practical. The tables, formulae, and figures shown are practical rather than theoretical in nature. It should save the time of many a busy operator, engineer, superintendent, and foreman.

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Chapter III — Power Transmission
Chapter IV — Tubular Goods
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be packed when wide open when under pressure. They are furnished either in steel, Exelloy or 18-8 chrome nickel alloy.

The new globe valve, No. 222½, is made with male and female ends in sizes ⅛ to ¾-inch inclusive. It is considered especially convenient where it is desirable to screw the valve directly into equipment having a female opening, thus eliminating the need for a nipple. Sizes ⅛-inch and 1-inch also are being added to the existing Crane line or bar stock valves known as Nos. 222 and 223. Crane bar stock valves, therefore, now include the globe and angle patterns with female ends in sizes ⅛ to 1-inch inclusive, and the new globe pattern with male and female ends mentioned.

CARBON STEEL WRENCHES

J. H. Williams & Co.

An improved type of Carbon Steel Wrench is being supplied by J. H. Williams & Co., 75 Spring St., New York, in a complete standard line consisting of 50 patterns and more than 1000 sizes. These wrenches are approximately twice as strong as old-fashioned carbon steel wrenches and average 93 percent as strong as alloy steel wrenches of similar size.

The unusual strength characteristics of these wrenches are said to result from the fact that they are drop-forged from improved quality carbon steel and specially processed to the exacting specifications of the manufacturer.

J. H. Williams & Co., as large manufacturers of both carbon and alloy wrenches, recommend its carbon wrenches for most industrial uses and its chrome-molybdenum wrenches for automotive and other purposes where operation in close quarters is required, where higher polishing and chrome-plating is desired, or where that extra 7 percent of strength is essential.

GASOLINE ENGINES

Hercules Motors Corporation

Hercules Motors Corporation, Canton, Ohio, recently announced the development of two new models of two-cylinder, heavy duty gasoline engines, known as NXA and NXB. These two engines are identical in general design and most parts are interchangeable, the only difference being in the bore size and the parts affected thereby. The maximum torque of the "NXA" is 39 pounds feet at 1100 r.p.m., and the maximum torque of the "NXB" is 46 pounds feet at the same speed. For continuous peak load service both models can be operated up to 1800 r.p.m., at which speed the "NXA" develops 12.4 and the "NXB" 14.7 corrected horsepower.

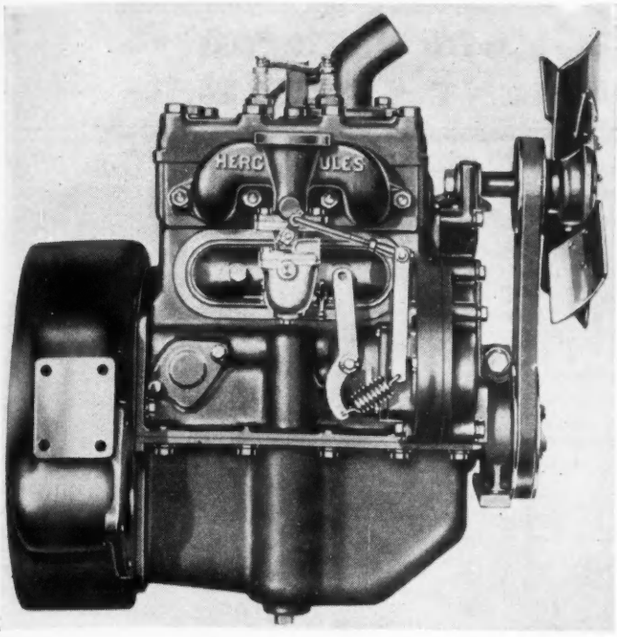
Special consideration has been given to the cooling of the valves, and the usual Hercules practice of cooling the valves through the stem is employed. Updraft manifolds of either the center or rear outlet type can be furnished. The Number 5 SAE bell housing is furnished as standard equipment on the engines and the industrial power units, although the Number 4 size can be furnished upon request.

Full force-feed lubrication to all main and connecting rod bearings is furnished and the lubricating pump is located in the oil sump and is driven by helical gears from the main camshaft. Oil pressure can be easily adjusted to suit operating requirements.

The crankcase is cast integral with the cylinder block, and carries the crankshaft supported by two main bearings of ample proportion. These bearings are 2 inches in diameter, the front bearing is 1-9/16 inches long and the rear bearing being 1⅝ inches long. Connecting rod bearings are 1¾ inches in diameter and 1⅛ inches long, connecting rods being 6-9/16 inches in length from center to center.

The pistons normally are of cast iron, carrying three rings above the pin. The lower of these rings is of the oil-regulating type, being 3/16-inch in width, while the two upper rings are of the compression type, ⅛-inch in width. The piston pins are of 1020 SAE McQuaid Ehn tested steel ¾-inch in diameter. Each pin is securely locked in its connecting rod by means of a clamp bolt and operates in two hard-cast bronze bushings in the piston. Aluminum pistons can also be supplied. The camshaft is supported in two main bearings of ample size, and is driven by helical gears.

These engines have L-head cylinders and the valves have 30° seats. The exhaust valve has a clear diameter of 1⅛ inches, and the intake valve 1¼ inches. The crankshaft in the "NX" series is counter-balanced to compensate for the



Hercules "NX" two-cylinder gasoline engine

full amount of the rotating mass, plus 45 percent of the reciprocating mass, making for exceptionally smooth two-cylinder operation. Provision is made for the usual accessories, including generator, starter, flange-mounted magneto, battery-type distributor, mechanical governor, fuel pump, fan drive and 1-inch carburetor.

SLUSH PUMP PISTON

W-K-M Company, Inc.

W-K-M Company, Inc., Houston, Texas, is now manufacturing and distributing exclusively the Wells Convertible Slush Pump Piston. This Piston is quickly converted from one size to another by merely changing the rubber sleeves. This feature eliminates the necessity of frequent pulling of the pistons from the rods, and also enables several changes of size at the cost of only the rubber sleeves. Steel parts are of top-grade, heat-treated steel. The steel insert ring, vulcanized to the laminated rubber sleeve, absorbs all the load and insures longer life.

Wells Convertible Slush Pump Piston

SAFETY PULL

Coffing Hoist Company

Coffing Hoist Company, Danville, Illinois, recently developed a new hoist, which is called the Coffing "Safety Pull."

Newest of the many features is the push button control. When the load has been elevated and it is desired to lower the hoist, the operator simply pushes in the button and the hoist's action is reversed. This control also acts as a safety stop; if the worker's hand should slip off the handle while operating, this device automatically and positively locks the handle before it can revolve or cause any damage. Two other separate safety stops prevent handle from whirling around and causing injuries to workmen.

A new intermediate locking pawl works alternately and intermediately with main locking pawl and enables the load to be stopped in locking position at half the length of the regular stroke. This added pawl also serves as an extra safety.

BIG

as a

A SLIGHT exaggeration, we admit . . . but once you have occupied one of the beautiful new rooms in **Hotel McAlpin,** you will agree there is a cheery spaciousness to our rooms seldom found elsewhere. Everything in these big beautiful rooms is new . . . carpets, draperies, furniture and fixtures . . . and yet so comfortably homelike that you wonder how such luxury can be enjoyed at such moderate cost.

JOHN J. WOELFLE, Mgr.

★ HOUSE

HOTEL McALPIN

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Broadway at 34th St.

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$2.50 SINGLE **$4.00** DOUBLE **$4.50** TWIN BEDDED

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In COLUMBUS it's The NEIL HOUSE

In AKRON it's The MAYFLOWER

In TOLEDO it's The NEW SECOR

In JAMESTOWN (New York) it's The JAMESTOWN and The SAMUELS

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Unusually Comfortable, Modern Rooms; Good Food, Carefully Prepared and Served; Every Modern Hotel Facility and Reasonable and Uniform Rates

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STANDCO BRAKE LINING
Nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 1940, Composite Catalog.
STANDARD BRAKE LINING CO.

NABORS TRAILERS
PRICE REDUCTIONS
Lowest Base Prices in this Company's History
W. C. NABORS COMPANY
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Specializing in the manufacture of High Quality
Mechanical Rubber Goods
Prompt, Efficient Service to
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Molded, Mandrel and Extruded Packers and Washers
Houston's Only Exclusive Jobbing Manufacturing plant. Equipped with Calender, Mill, Tuber, Presses and Pot Vulcanizers.
FACTORY TRAINED MEN.
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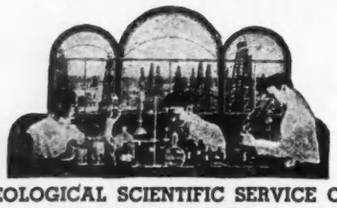
PERHAPS YOU SHOULD KNOW:
1. That more major concerns use this company's GEOPHYSICAL SERVICE for locating oil than perhaps any other one concern.
2. That although our mistakes are sometimes serious, yet:
3. We can accurately record structural accelerations 5 out of 6 times, and
4. Oil, possibly 6 out of 10 times.
5. By chemical analysis of surface soils.



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and telling the girl your name and address
(Calls accepted from anywhere on earth)

This Week with the Industry's EQUIPMENT SUPPLIERS

Republic Steel Corporation Opening Most Modern Strip Mill

On March 15 Republic Steel Corporation is formally opening the world's widest and most modern strip mill.

The mill, located in Cleveland, covers some 21 acres of floor space and includes some of the most amazing mechanical equipment that has ever been installed in an industrial plant.

Wilson Supply Company Opens New Store at Gretna, Louisiana

Wilson Supply Company, 1412 Maury Street, Houston, Texas, recently announced the opening of a new branch store at Gretna, Louisiana. The new store location is just across the Mississippi River from New Orleans. Jack DeFee has been named manager.

Link-Belt Company Adds New Sprockets to Dallas Stock

In addition to the regular stock of hub type sprocket wheels, Link-Belt Company's Dallas warehouse, 413-415 Second Avenue, Dallas, Texas, now carries very complete stocks of cut-tooth Type "A" plate steel sprockets for chains ½ up to 2-inch pitch, inclusive. These are wheels that can be mounted on drum hubs and bored out to fit the size of hub that purchaser has available.

W-K-M Adds Line of Water Softeners

The W-K-M Company, Inc., Houston, Texas, is now exclusive distributor for the complete line of oilfield water softeners manufactured by the Continental Chemical Company of Sand Springs, Oklahoma.

The zeolite method of softening water has been adopted by practically all operators, both on steam drilling rigs and gas, gasoline or Diesel powered rigs. W-K-M offers four models of Continental Softeners for steam rigs and five models for internal combustion engines, providing various capacities according to requirements.

Atlas Supply Company Enters K-M-A with New Store

With the designation of Wichita Falls as district headquarters and a new store at Electra, Atlas Supply Company has launched a program of expansion to take care of the new developments in North Texas. Harold U. Everett, division manager at Fort Worth, will have general charge of all Texas operations, with Ralph M. Carter as district manager at Wichita Falls.

Everett and Carter are veterans in Texas and Oklahoma oil fields, Everett having been with Atlas Supply Company continuously since 1916, except for "time out" for military service in France. Carter has been with the company since 1919, being stationed in sequence at Seminole, Longview, Greggtown and back to Seminole before going to Ada, from which point he is being transferred to Wichita Falls. The Electra store was opened March 1 for business with a complete stock. The Wichita Falls office is in the Radio Building.

R. M. CARTER

H. U. EVERETT

Irwin N. Witherspoon, formerly of Vernon and Electra, returns as manager of the Electra store.

Timken Roller Bearing Company Opens Sales Office at Houston

The Timken Roller Bearing Company, Canton, Ohio, has opened a sales office at 814 Sterling Building, Houston, to be under direction of S. T. Salvage, sales engineer, transferred from the company's Pittsburgh office where he worked the Pennsylvania oil fields. The Houston office handles sales of bearing and bar steel.

Tretolite Company Wins Patent Suit in California Court

In an opinion handed down in Los Angeles March 2, Federal District Judge Harry A. Hollzer found U. S. Patent No. 1,467,831, relating to a process for removing water and emulsion from crude petroleum oil by means of chemicals, to be valid and infringed. The opinion was delivered in the case, known as Equity No. 105-H, of The Tretolite Company et al., plaintiffs, vs. Research Products Company, Ltd., et al., defendants. This suit was filed in November, 1933, and was tried before U. S. Commissioner David B. Head, sitting as special master, in 1935. The particular reagent used by the defendants is known as "Hydrate 488."

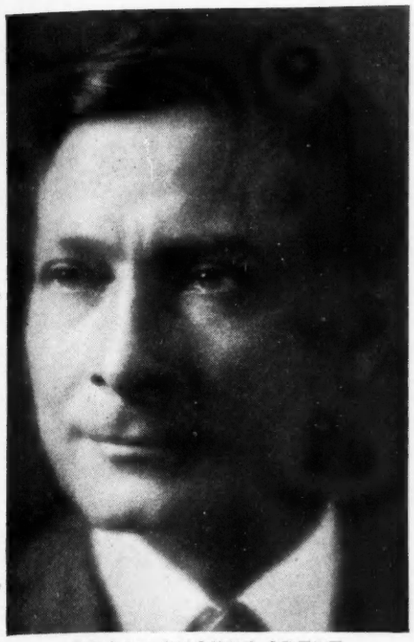
The opinion confirms the findings and conclusions contained in the master's report, which was filed in 1936. Judge Hollzer's opinion states:

"The court concludes for the reasons herein set forth, as well as upon the grounds stated in the master's report, that the exceptions taken by the defendants to the master's findings and report should be overruled and that a decree should be awarded to plaintiffs as recommended by the master."

The master's report recommended that "a decree be entered in accordance with the foregoing conclusions, that an injunction issue restraining the defendants from the acts found to infringe Letters Patent No. 1,467,831 and that an accounting of profits and damages be had."

E. E. Greve, Former Oil Well Company Chief Engineer Dies

Edgar Eugene Greve, formerly chief engineer of Oil Well Supply Company, died March 6 in Dallas following a prolonged illness. He was born in Brooklyn, New York, in 1881, graduated from Stevens Institute of Tech-



EDGAR EUGENE GREVE

nology in 1904 and took graduate work at the Colorado School of Mines. Following several years of varied practical and engineering experience in the oil fields, he joined Oil Well Supply Company in 1912 as chief engineer. Although associated with the company until the time of his death, he discontinued active duty in 1935 in an effort to overcome a lung affliction, which, however, did not yield to treatment. He accordingly retired under the company's benefit plan in 1937.

Greve's name has been associated with many improvements and developments in oil field equipment of the past 25 years. He maintained an active interest in the A.S.M.E., the A.S.T.M., and the American Petroleum Institute, and served on committees of the Division of Production of the American Petroleum Institute. He also participated in the affairs of various technical societies.

Marmon-Herrington Company Opens Canadian Plants

Officials of Marmon-Herrington Company, Indianapolis, Indiana, have announced completion of arrangements for establishment of factories for the manufacture of All-Wheel-Drive vehicles at two strategic points in Canada.

To serve western Canada the factory will be located at 650 Burrard Street, Vancouver, British Columbia, under the name of Truck Parts and Equipment, Ltd. The territory from the prairie provinces to the maritime provinces will be served by Canadian Traction, Ltd., 1396 Saint Catherine Street, West, Montreal, Quebec.

"Conversion of Standard Fords to all-wheel-drive by Marmon-Herrington is in no sense an accessory operation," says A. W. Herrington, president of the company. "All of the work must be done in a plant which has the necessary special machinery and equipment, by experienced workmen trained in this service. All parts of the chassis affected by all-wheel-drive conversion are completely re-engineered and built, to apply the same engineering principles to these vehicles which characterize Marmon-Herrington all-wheel-drive trucks with load capacities up to 25 tons."

Plans for Tulsa Exposition Transportation are Outlined

Ways and means of transporting freight and passengers to and from the International Petroleum Exposition, May 14 to 21, was the topic for consideration of executive and transportation committees of the exposition in meeting at Tulsa March 8 with officials of air line and railroads. Following the morning committee meeting, general consideration was given the question at a luncheon attended by more than 100 transportation executives and representatives, who pledged unanimous support to the program. Plans were sketched briefly by which the efforts of the transportation companies could be concentrated. Informal speakers were presented at the noon meeting of the Traffic Club presided over by J. S. Rollman, city passenger agent for Santa Fe System, these being W. G. Skelly, president of the International Petroleum Exposition; Wm. B. Way, general manager of the exposition; A. F. Winn, chairman of the committee of transportation of the exposition, as well as other participants. During the afternoon, busses took the gathering to the exposition grounds where changes in the buildings and outlay were pointed out, and general methods of presenting the exposition to the best advantage of all were discussed.

Welding Society Appoints Board To Select Winner Lincoln Medal

A board of awards, composed of H. L. Whittemore, chairman, and G. T. Horton and A. G. Oehler, has been appointed by the executive committee of the American Welding Society, to select the recipient of the Lincoln Gold Medal for 1938 donated by J. F. Lincoln, president of Lincoln Electric Company. Following appointment, the board drafted regulations governing award of the medal which has been accepted by the society for annual award.

Purpose of the award is to encourage presentation before the American Welding Society of papers which are effective in promoting the use of welding.

For the author or authors to be eligible for the award, the paper shall describe clearly original work done by them or under their immediate supervision on welding in any of its aspects and by any method or process.

For the author or authors to be eligible for this award the paper shall have been published in the journal of the American Welding Society for the period beginning with the issue next following the annual meeting issue for the year next preceding the year for which the award is made and ending with the annual meeting issue for the year for which the award is made, and also, the paper shall have been presented or scheduled for presentation either at any meeting of the American Welding Society or a meeting of any section of the society.

Herold, Sales Manager for Wheatley Bros. at Tulsa

George F. Herold has been made sales manager for the Tulsa plant of Wheatley Bros. Pump & Valve Manufacturers. Herold, a native of Kansas City, Missouri, graduated from the University of Kansas with a degree in mechanical engineering. From 1927 until

GEORGE F. HEROLD

1930, he was sales engineer for Wagner Electric Corporation, St. Louis, Mo., following which he resigned to go with Mid-West States Utilities Company. While with this concern, Herold spent considerable time in East Texas during its early development. In 1935, he accepted a position with Fairbanks-Morse Company at Tulsa as sales engineer and resigned January 1, 1938, to become affiliated with Wheatley Bros. Pump & Valve Manufacturers.

University of Texas

OIL AND GAS LEASES

In Crane, Crockett, Ward and Andrews counties offered at public auction March 25, 1938, at the Highway Building Hearing Room, Austin, Texas.

For additional information, write to the Secretary, **Board for Lease of University Lands, University Station, Austin, Texas.**

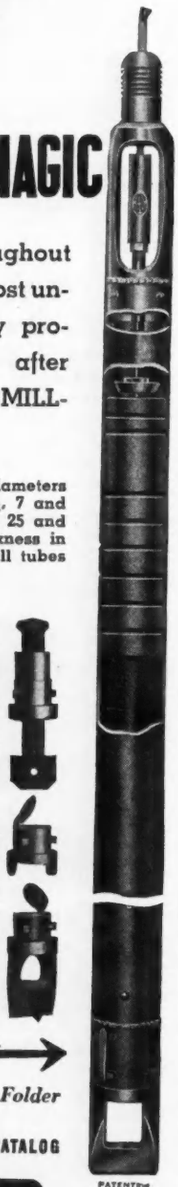
MILLER

Performance is almost MAGIC

Oil Companies throughout the world find it almost unbelievable, the way production increases after cleaning-out with a MILLER Sand Pump.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS
To Meet Every Condition



- **BAILER BOTTOM**
  With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.
- **SAND BOTTOM**
  Used when tools are run and when well is shot to quickly remove loose material.
- **STAR BOTTOM**
  Used for cutting the sand loose.
- **CHISEL BOTTOM**
  (In Pump)
  With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1186 COMPOSITE CATALOG

PATENTED NO. 1370340 NO. 1523604 NO. 1767280 NO. 1862628 NO. 1866028 NO. 2055667

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SAPULPA, OKLA. and KILGORE, TEX.

FOR SALE BY SUPPLY STORES EVERYWHERE

Squeaks from the Bull Wheel

Defined

"Sadie, what is a gentleman?"

"A gentleman is a man you don't know very well."

Attentive to Her Job

"I may say I'm regarded as quite smart," announced the applicant for the stenographer's position. "I've won several prizes in crossword and jigsaw puzzles, and word picture competition lately."

"Yes, but I want some one who can be smart during office hours."

"Oh, this was during office hours!"

California!

And when it rained forty days and forty nights, what happened then?

The natives said it was very unusual.

Stocked Up

The grocer was making out a list of his requirements to send to his wholesalers.

"Bill," he shouted to his assistant, "do we want any new-laid eggs?"

"No, sir, we've enough to last a month or more!"

Wrong Number

He had been trying to secure the attention of a waitress for 20 minutes, but at last got up from his chair and, going to the desk, demanded to see the manager.

"What for?" asked the girl.

"I've got a complaint," he replied.

"Complaint?" retorted the girl, haughtily. "This is a cafe, not a hospital."

One Way

"Some upper classman was just telling me that we are to have a new concrete stadium next fall."

"Yes, the alumni have at last decided to use their heads."

Mixing His Metaphors

The Irishman had been describing his travels in the far West, and the virgin forests there.

"What is a virgin forest?" asked one of his listeners.

"Phwat is a virgin forest is it ye want to know? A virgin forest, sorr, is one phwere the hand o' man has niver set foot!"

A Predicament

"How is your boy Josh getting along at college?"

"He has us puzzled. He's a football player and also a female impersonator in the dramatic club. We don't know whether to treat him like a roughneck or a lady."

Curious

A little hillbilly watched a man at a tourist camp making use of a comb and brush, a tooth brush, a nail file and a whisk broom.

"Gee, mister," he finally queried. "Are you always that much trouble to yourself?"

Sales Appeal

"What would you say if I hired you as my private secretary?"

"I won't say anything but 'Yes'."

No Difference

"What is the difference between a bathroom and a cemetery?"

"There is no difference. When you gotta go—you gotta go."

No Experience

"Did you ever wake up in the morning with a grouch?"

"Heavens, no! I'm not married!"

Keeping Up

I wonder why it is we can't save anything?

It's the neighbors, dear, they are always doing something we can't afford.

Landlubber

"What are you smelling my fish for?"

"I'm not smelling him. I'm only talking to him and asking him what news from sea."

"And what does he say?"

"He says he doesn't know—he hasn't been there these three weeks."

Fussy

"Why don't you go to the bank and borrow money?"

"I did once, but I don't like their methods. They expect you to pay it back when you promised to."

Lightening the Burden

An Irishman carrying a large sack of potatoes along a lonely road was overtaken by a man driving a horse and cart.

The driver offered Pat a lift, which he gladly accepted, but still kept the sack of potatoes on his back. The driver told him to put them down in the cart.

"Sure," Pat replied, "I'm thankful for the lift ye give me, but I don't wont ye to be burdened with the taters as well."

Legal Advice

A well-known attorney was always lecturing his office boy, whether he needed it or not. One day he chanced to hear the following conversation between the boy and the one employed next door:

"How much does your chief pay you?" asked the latter.

"I get $1500 a year. Five dollars a week in cash and the rest in legal advice!"

Thrifty

Sandy was thinking of getting married, but wanted to be sure that the girl of his choice was thrifty.

So one night, when out walking with her, he said, "Maggie, I ken a lassie that reads for 'oors in her bed at nicht and wastes a lot of gas. Do you read in bed?"

"Only when it's a moonlicht nicht," she replied. A week later they were married.